

DENTAL HEALTH EVALUATION AND INSTRUCTION FOR ALCOHOLICS:
A QUANTITATIVE AND QUALITATIVE STUDY

By

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DEDICATION

I dedicate this dissertation to my foremost counselor, the Lord Jesus Christ. In testimony to the promise of His word, I give Him the glory for all that I accomplish for He is faithful to lead me to abundant resources and to guide my daily paths.

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Abstract of Dissertation Presented to the Graduate School
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By

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Chairperson: Margaret K. Morgan, Ph.D.

Major Department: Curriculum and Instruction

The purpose of this study was to determine whether any type of dental health instruction, or self-administered fluoride, or combination of the two, could be effective in improving the oral health status for alcoholics housed in a residential treatment facility for a short time. The experimental program of instruction was designed to meet each participant's needs and ability. Instruction included a variety of methodologies both individually and in groups. Using a double-blind approach, staff randomly assigned fluoride and placebo gels to participants.

The investigator used a non-equivalent control group design modified by the use of a second control group and a completely randomized design to investigate the fluoride treatment variable. The investigation took place in a 50-bed publicly funded residential alcoholism treatment facility. Both domiciliary alcoholics and

facility staff participated in the study with two groups of volunteer alcoholics, one receiving individual and group instruction (N = 26) and the other serving as the control (N = 23). Facility staff members (N = 14) also received instruction and served as a control for alcoholism. The investigator used data collected from descriptive records, counselors' reports, and a comprehensive case log to characterize the alcoholics on a number of relevant variables, and data from oral cancer examinations to compare alcoholics and non-alcoholics on possible oral abnormalities.

The investigator measured participants' oral health status before and after implementation of treatment using (a) scores from the Löe and Silness Gingival Index and (b) scores from the Silness and Löe Plaque Index. The dental health indices data served as the dependent variables for statistical analysis. Instruction for alcoholics and staff was effective at the .05 level on both dependent measures. Fluoride alone or in combination with instruction did not significantly affect the gingival or plaque measures. Dental examination data indicated that on every surface examined the frequency of suspicious areas was higher for alcoholics than for non-alcoholics. The investigator concluded that, within the limitations of study location, time frame, and sample size, dental health intervention can be effective in improving the oral health status of alcoholics and non-alcoholics in the treatment setting.

CHAPTER I

INTRODUCTION

Alcohol is the most widely used and abused drug in this country. Recent estimates have placed the average daily consumption for those who drink at three drinks per day, every day (DeLuca, 1981; Vaillant, 1983). While most people drink without problems, 10% of Americans who drink either are alcoholics or experience problems with their drinking (DeLuca, 1981). This tenth of the drinking population consume between 50% and 70% of all alcoholic beverages ("Fifth Special Report," 1983; Jacobson, Hacker, & Atkins, 1983).

Dental diseases have always existed. The need for proper dental care to reduce the incidence of dental diseases has been well documented. Despite the fact that the dental health professionals have made great progress in developing preventive techniques and perfecting dental technology, many people do not receive instruction in proper oral hygiene. Alcoholics frequently neglect personal hygiene and generally seek only emergency dental care. Investigators have linked alcohol abuse to a myriad of social and health problems, including oral neglect and dental diseases (Becker, 1979).

The purpose of this study was to determine whether any type of dental health instruction, or self-administered fluoride, or a combination of the two, could be effective in improving the oral health status for alcoholics who are in a residential treatment facility for a short period of time.

Background of the Problem

Alcoholism is a debilitating disease that affects all aspects of an individual's health--physical, psychological, social, and spiritual (Kinney & Leaton, 1983). The number of people who fall into the category of alcoholic is so extensive that scientists consider alcoholism an epidemic disease (Shapiro, 1971). Of the general population, 37% may have never, or only rarely, availed themselves of routine dental care (U.S. Department of Health, Education and Welfare [USDHEW], 1977). Approximately one out of every 10 patients seen in a dental practice will be an alcoholic and nearly six out of 10 patients will ingest alcohol to some degree (Molina, 1981). Investigators have also frequently associated long-term dental neglect with chronic alcoholism (Molina, 1981). Such findings are not surprising since alcoholics often lose interest in practicing oral and body hygiene and are unconcerned as to their appearance (Larato, 1972; Ward, 1983).

The Impact of Alcoholism on the Oral Cavity

A number of investigators have found a relation between oral and systemic diseases (Belting, Hinnikdr, & Dummett, 1964; Sandler & Stahl, 1960; Sandler & Stahl, 1954).

Alcoholics show general deficiencies in oral hygiene--a coated tongue, the presence of heavy plaque, carious lesions, deposits of calculus, gingivitis, and periodontal disease (Becker, 1979; King & Tucker, 1973; Larato, 1972; Schuckit, 1979). Certain pathologic conditions such as inflamed mucous tissues, leukoplakia, and cancer

of the oral pharynx have a higher incidence among alcoholics than in the general population (Harwood, 1979; King & Tucker, 1973). Research studies also indicate a high correlation between heavy smoking, heavy drinking, and oral carcinoma (Geist, Evans, & James, 1979; Weber, Sherman, & Stoopack, 1979). Concomitantly, investigators have associated heavy smoking with increased stains on tooth surfaces and reduced motivation in oral hygiene habits (Harwood, 1979; Horowitz, 1980; Molina, 1981). Extraoral examination of alcoholics shows enlarged parotid glands (salivary glands situated below and in front of the ear) and a high incidence of head and neck cancers (Graham, 1977; Molina, 1981). Additionally, the problems alcoholics experience with oral hygiene are not simply esthetic. Low-grade infections reduce energy and stamina and correlate with depression and negative self-image (Szymaitis, 1977).

For safe, scientific dental and oral hygiene care, a complete patient history, including medical and dental assessment, is essential (Wilkins, 1983). A medical-dental health history, including extraoral and intraoral examination, is an effective tool in determining the status of an individual's dental health and the need for immediate as well as preventive therapy. Dental health assessment and education are cost-effective measures in improving the overall status of individuals suffering from alcoholism.

The Importance of Dental Health Maintenance

Dental health professionals have associated the microorganisms of dental plaque with both dental caries and periodontal disease (Lobene, 1979; Lobene & Soparkar, 1974). Dental plaque causes

gingivitis which may progress to the development of periodontitis or periodontal disease. Control of bacterial plaque accumulation is the means for making preventive programs effective (Fischman, 1979). Both levels of gingival inflammation and dental plaque can be effective physical measurement techniques in the quantitative evaluation of periodontal disease ("Proceedings of the Workshop," 1979). Because dental plaque is colorless, those providing dental care usually identify it through staining prior to scoring a plaque index. Fischman (1979) defined plaque operationally as a stainable material.

Investigators have found fluoride to be effective in reducing dental caries. More recently dental researchers have determined that stannous fluoride gel as an antimicrobial agent has an effect on plaque quantity and metabolism and can be an antiplaque agent (Hoffman, Tow, & Cole, 1977; Mellberg, Ripa, & Leske, 1983; White & Taylor, 1979; Yoon & Berry, 1979). White and Taylor (1979) indicated that the use of a 0.4% stannous fluoride gel as an antimicrobial agent is effective in lowering plaque scores. Stannous fluoride gel is effective when adults self-administer it, even when they have not had instruction in oral hygiene (Shannon, Wescott, & Feller, 1976). Investigators have used double-blind approaches in clinical studies on antiplaque agents (Cummings, 1982; Lobene & Soparkar, 1974). The use of a placebo is important in regard to clinical trials since it has the ability to mimic active drugs in its effects (Lasagna, Laties, & Dohan, 1958). A placebo also serves as control for spontaneous variation and investigator or observer bias. Researchers in the health professions recommend the double-blind approach where the placebo and

the active drug are as identical as possible in physical and other characteristics (Levine, Schiele, & Bouthilet, 1971).

Research indicates that for society as a whole daily removal of bacterial plaque is one key to reducing the incidence of oral periodontal disease, gingivitis, dental caries, and fetor oris (bad breath). However, few people spend even 5 minutes daily using oral hygiene techniques in taking adequate care of the mouth. According to Steinke (1980), 95% of dental care is based on psychology and motivational instruction and yet members of the profession spend only 5% of their time on providing instruction.

Huntley (1981) found that "A patient's lack of performance in maintaining dental health is often related to problems in motivation" (p. 37). Motivation of patients toward effective plaque removal requires the establishment of an effective educator-patient relationship, a controlled learning environment, and proper instruction (Hausmann & Hausmann, 1976). The instructor must approach motivation from the cognitive, psychomotor, and affective domains of learning and must bring about a behavioral change as evidenced by reduced plaque levels (Ayer, 1979; Hausmann & Hausmann, 1976; Holtzhausen, 1981; Huntley, 1981; Thornberg & Thornberg, 1975). In a study of the effectiveness of various methods of plaque control instruction on short-term motivation, Kois, Kotch, Cormier, and Laster (1978) demonstrated that instructing patients individually was as successful in reducing plaque as was instructing them in a group. However, success in motivation requires that dental health professionals be highly motivated themselves to expend time, energy, and patience to discover each patient's needs and to guide each to an individualized self-care oral prevention program (Crunk, 1982; Seiwert, 1979).

For physical, psychological, and social reasons, alcoholics need to learn a regular program of dental health maintenance. To ignore dental diseases and low-grade infections is to put the alcoholic at increased risk for additional infections and to increase the probability of a return to alcoholic behavior. Good esthetics can elevate low self-esteem (Szymaitis, 1977). Oral hygiene is one of the important components of restoring total health to alcoholics.

Statement of the Problem

The effects of alcoholism on the oral cavity are widespread (Schuckit, 1979a). A majority of the general population suffers from some type of dental disease due to a lack of oral hygiene. Since personal neglect usually accompanies the progression of alcoholism, alcoholics are even more likely than others to suffer from dental diseases (Molina, 1981; Szymaitis, 1977). Despite advances in dental technology, the incidence of dental disease remains high. This is in part because many people still view dentistry as a luxury. For financial and other reasons, many alcoholics have not received recent instruction in the proper use of oral physiotherapy aids and are therefore even more likely to have poor dental health habits (Dunkley & Carson, 1968).

Residents in alcohol treatment facilities undergo a short period of therapy, generally 28 days; therefore, dental health intervention for this group must take place in a short period of time.

The problem I addressed in this study was whether any type of instruction, or fluoride treatment, or combination of the two, can bring about change in oral health of alcoholics in a short time.

Significance of the Study

This study adds to the sparse literature on dental health assessment and dental education intervention as a means of reducing plaque levels and improving dental habits for alcoholics. I designed this study, one of the first of its kind, to provide participants with information and skills that will help them to improve their oral health status. Equally important, I designed the study with the hope of providing another cost-effective component of the holistic concept of alcoholism treatment.

Assumptions Underlying the Study

The assumptions that underlie this study are as follows:

1. The level of dental health is lower for alcoholics when compared with non-alcoholics.
2. Dental neglect and dental diseases will continue to exist in alcoholics.
3. The need for dental health instruction for individuals being treated for alcoholism will continue.
4. A medical-dental health history, including extraoral and intraoral examination, is an effective tool in determining an individual's dental health and the need for immediate as well as preventive therapy, and a necessary health precaution for the dental professional.
5. Plaque and gingival indices are adequate measuring devices in determining oral hygiene status.

6. Self-administered 0.4% stannous fluoride gel is an effective anti-plaque agent for alcoholics.

7. The double-blind approach is a reliable means of evaluating the effects of fluoride.

In addition to the previous seven assumptions, I also accepted the following six unverified suppositions:

1. Alcoholics as well as non-alcoholics can be trained in the skills necessary to clean their mouths.

2. Alcoholics in treatment and also non-alcoholics can be motivated over a short period of time to perform oral hygiene techniques.

3. Oral hygiene is an important component of restoring total health to alcoholics.

4. Criterion groups consisting of the population of alcoholics in a publicly funded residential treatment facility located in a Florida city are representative of the universe of alcoholics in publicly funded residential treatment facilities.

5. The oral hygiene status of staff employed by the treatment facility is representative of the oral hygiene status of the general population.

6. Dental health assessment and education are cost-effective measures that can be included in a residential treatment setting for alcoholics.

Research Questions

This study was an investigation of the effect that dental health instruction and self-administered fluoride have on the oral health

status of one group of non-alcoholics and two groups of alcoholics.

The research questions were as follows:

1. Will staff have a higher level of oral health prior to and after treatment than residents have?
2. After 3 weeks will staff have significant change in oral health status if they receive fluoride with dental health instruction?
3. After 3 weeks will staff have significant change in oral health status if they receive no fluoride with dental health instruction?
4. After 3 weeks will residents who receive fluoride with dental health instruction have improved oral health?
5. After 3 weeks will residents who receive no fluoride with dental health instruction have improved oral health?
6. After 3 weeks will residents who receive fluoride with no dental health instruction have improved oral health?
7. After 3 weeks will residents who receive no fluoride and no dental health instruction have improved oral health?

Research Hypotheses

I tested the following seven null hypotheses.

For experimental and control groups

1. The preassessment and postassessment levels of oral health will not differ for alcoholics and non-alcoholics.

After 3 weeks staff will have no significant change in oral health status if they receive

2. Fluoride with dental instruction.
3. No fluoride with dental instruction.

After 3 weeks residents will have no significant change in oral health status if they receive

4. Fluoride with dental instruction.
5. No fluoride with dental instruction.
6. Fluoride and no dental instruction.
7. No fluoride and no dental instruction.

Limitations and Delimitations

Limitations

The study took place in a typical (50-bed) inpatient alcoholism treatment facility. Due to the facility size and the therapy schedule, random selection and random assignment of study participants were not possible.

Conducting the study in the natural setting of the residential treatment facility provided the advantage of demonstrating practical applicability. It had the disadvantages of limited control of variables, unrandomized selected of subjects, and restricted generalizability of findings.

Supervised use of the fluoride gel was not possible in the naturalistic setting. Self-reported use limited control of this treatment variable.

Members of the resident experimental group shared living quarters during the time they used the fluoride and placebo. The risk existed for contamination of post-assessment results on the effects of fluoride due to the possibility of sharing the gel. The same risk of contamination results was possible for the control group of

alcoholics who also shared living quarters during their time of fluoride use. Both groups were requested orally and in writing not to share the gel.

Members of the experimental group commenced alcoholism treatment at varying times. I gave those individuals who left treatment before the conclusion of the 3-week educational program the same amount of instruction over a shorter period of time and assessed them on post-oral status prior to their leaving the treatment facility.

Delimitations

This study included a nonrandomized sample population of 58 drawn from diagnosed acute and chronic alcoholic patients admitted to a treatment facility over a 10-week period. It also included 15 staff members who volunteered to participate as being representative of the general population. I selected the sample by conducting an initial medical and dental health assessment. I did not include those who have lost all of their teeth (edentulous patients).

I conducted both the group and individual oral hygiene instruction with the resident participants, spending 13 hours a week (39 hours in 3 weeks) in providing motivational dental health instruction. For each staff member I gave instructions one time only, immediately following pre-assessment of oral hygiene status.

I made no attempt to distinguish between styles of instruction or types of oral physiotherapy aids since I assigned both dental implements and instruction based on individual ability and needs. I maintained a comprehensive case study log on each participant in the experimental group to determine individual needs.

For the residential control group I evaluated only the effects of fluoride on plaque reduction.

I did not perform oral prophylaxis intervention for any group.

I did not attempt to predict long-term change in oral hygiene for the study population.

Definition of Terms

The following terms are defined as they were used in this study:

Alcoholism is a progressive disease in which individuals are unable, for psychological or physical reasons or both, to refrain from the consumption of alcohol, resulting in problems in one or more areas of their lives.

An alcoholic is a person who has become dependent physically or psychologically or both on the drug alcohol, consequently drinking more alcohol than the socially acceptable norm.

Acute alcoholic and residential alcoholic are used interchangeably to mean those individuals in the early stages of alcoholism who are undergoing treatment in a comprehensive alcoholism treatment facility for the first time.

A case study is a comprehensive description and explanation of the many components of a given social situation, used in this study as a descriptive report of observation on the alcoholics who receive dental instruction.

Chronic alcoholic or minimal resident alcoholic is used interchangeably to mean those individuals whose current functional levels preclude them from adequately functioning within the community, who are currently "revolving" in existing systems due to the lack of adequate alternatives and who are in need of specialized domiciliary services due to numerous problems in conjunction with alcohol abuse.

Dental caries, carious lesions, and cavity are used interchangeably to mean a disease of the calcified structures of the teeth.

Dental calculus is a hard, calcified, tenacious mass that may occur on the clinical crowns and roots of the natural teeth and on dentures and other dental appliances. It can be removed from the teeth only by scaling procedures.

Dental health education is a process of coordination and integration of dental health messages that enables persons to make and act upon informed decisions about matters affecting their dental health.

Dental health instruction, dental health teaching, and oral health instruction are used interchangeably to mean effective transmission of knowledge and skills relative to dental health.

Dental hygiene is used to denote all integrated preventive services administered to the patient by a dental hygienist.

A dental hygienist is a licensed, professional oral health educator and clinical operator who, as an auxiliary to the dentist, uses scientific methods of control and prevention of oral disease to aid individuals and groups in attaining and maintaining optimum oral health.

Dental plaque and bacterial plaque are used interchangeably to mean a thin, tenacious, film-like deposit made up principally of microorganisms and mucinous substances from the saliva. The individual can remove the substance from the teeth with a toothbrush and interdental aid.

Dentition is the kind, size, number and arrangement of the teeth.

Eye opener is the need to have an alcoholic drink immediately upon awakening.

Fetor oris and halitosis are used interchangeably to mean offensive or bad breath which may be related to systemic disease or uncleanness of the oral cavity.

Gingiva is used interchangeably with gum to mean the part of the masticatory mucosa that surrounds the necks of the teeth and is attached to the teeth and the alveolar bone.

Gingival margin or face gingiva is the edge of the gingiva nearest the incisal or occlusal surface of a tooth. It makes the opening of the gingival sulcus.

Gingival sulcus or gingival crevice refers to the crevice or groove between the face gingiva and the tooth.

Gingivitis is simple inflammation of the gums closely associated with the build-up of dental plaque on the teeth, whether adjacent to the gingival margin or directly underneath the gingiva in the area where the tooth and gingiva meet (the gingival crevice).

Interdental aid is any dental aid such as dental floss, a rubber tip stimulator, or proxybrush used to clean the sides of the teeth.

Interdental areas are areas of the tooth surface that are inaccessible to the bristle action of a toothbrush and, therefore, require cleaning with another dental aid.

Leukoplakia and precancerous lesion are used interchangeably to mean white plaque formed upon the oral mucous membrane from surface epithelial cells; premalignant surface lesion characterized by hyperkeratosis of the stratified squamous epithelium.

Materia alba is a thick, cream-white, loosely attached deposit observed on the teeth as a result of uncleanliness and a nondetergent diet. It can be removed from the teeth with a toothbrush and interdental aids.

Medical and dental assessment is an in-depth assessment of medical and dental status used in this study as a screening device to determine patients' ability to participate in this research project.

Oral diseases, dental diseases, and oral conditions are used interchangeably to mean dental caries, periodontal disease, malocclusion, oral and facial malformations, oral cancer and other soft tissue lesions and oral manifestations from systemic diseases.

A patient is any individual, either acute (resident) or chronic (minimal resident), in alcoholism treatment at the institution used as the site for this study.

Oral physical therapy, personal oral care and plaque control are the use of physical agents in the prevention, management, and control of oral diseases.

Patient education and patient teaching are used interchangeably to mean dental health education designed for a population with specific dental diseases or conditions.

A periodontal probe is a dental instrument used to identify the location, shape, and depth of a periodontal pocket.

Periodontitis and periodontal disease are used interchangeably to mean an inflammatory and degenerative condition, diagnosed by evidence of bone loss around the teeth (pocket formation) and closely associated with the microorganisms in dental plaque located beneath the gums (subgingivally).

Physiotherapy aids are all oral hygiene aids including tooth-brushes, dental floss, rubber stimulators, and interproximal brushes (proxybrush) used in plaque removal.

Placebo and fluoride placebo are used interchangeably to mean a device to serve as a control for spontaneous variation and observer bias.

Plaque is defined under dental plaque.

Prevention is the total of measures undertaken to prevent the onset of illness, to reverse or slow the progression of disease, or to control symptoms and reduce the complications of disease.

A proxybrush is a special home care aid designed to clean the interproximal surfaces of the teeth.

Relief drinking is drinking to either avoid pain, distress, boredom, isolation, and so forth; or drinking to maintain some level of normalcy.

Self-administration is the application by the patient of an oral hygiene agent such as fluoride.

Self-care and self-help are used interchangeably to mean those practices an individual actively undertakes in support of preventive dental health care and changed physical well-being.

Sulcular brushing is the use of a soft bristle toothbrush to remove plaque from the gingival sulcus.

Organization of the Study

This chapter contained an introduction to the study, an explanation of the problem, and a statement of the hypotheses to be tested. Chapter II is a review of the literature related to the

oral health status of alcoholics and to the effects of dental health instruction. Chapter III includes research methodology, instrumentation, data collecting procedures, research design, and data analysis. Chapter IV is a presentation of descriptive and statistical results. The final chapter contains a summary of findings, implications of the study, and recommendations for future research.

CHAPTER II

REVIEW OF THE LITERATURE

Introduction

Alcohol has long been the most popular legal drug in this country. It is also the nation's number one drug of abuse. Alcoholism ranks with cancer and heart disease as a major threat to the nation's health, yet it is the most neglected health problem in the United States today (National Institute on Alcohol Abuse and Alcoholism [NIAAA], 1980). Alcoholism involves both sexes and all ethnic, age, religious, economic, and sociocultural groups.

Alcoholism affects all dimensions of health. The effects of repeated alcohol consumption on the oral cavity are widespread. Alcoholism is significantly associated with cancer of the mouth and the oropharynx (Sexias, 1982). Smoking tobacco is a regular concomitant of alcoholism and thus evidently increases the risk of developing carcinoma of the mouth, pharynx, and larynx (Fine, 1977). While not a life-threatening condition, periodontal disease affects about three out of four adults who have at least one permanent tooth (U.S. Department of Health, Education and Welfare [USDHEW], 1965). According to Belcher (1975), gingival tissue destruction in periodontal disease results from the interaction of bacterial plaque with the host immune system. Thus, the daily removal of bacterial

plaque that accumulates on the tooth is a prime requisite to prevent and control periodontal disease (Suomi, 1980). Recent research also indicates that the adjunctive use of fluoride can have a favorable effect in reducing periodontal disease (Mellberg, Ripa, & Leske, 1983; Wilkins, 1983). Alcoholics have problems with periodontal disease. Since personal neglect accompanies the progression of alcoholism, alcoholics are at a higher risk than others in developing dental disease. Many alcoholics receive inadequate dental care and are therefore even more likely to have poor dental health habits.

The problems with the alcoholic's oral hygiene are not simply esthetic. Low-grade infections of the oral cavity reduce energy and stamina and are correlated with depression and negative self-image (Szymaitis, 1977). The goal of alcoholism treatment is to provide a comprehensive program geared toward improvement in all aspects of the alcoholic's life from personal care habits to improved self-esteem.

In summary, for physical, psychological, and social reasons the alcoholic needs to know the importance of a regular program of dental health maintenance. The alcoholic who ignores low-grade infection is at increased risk for additional infections and has an increased probability of returning to alcoholic behavior. Oral hygiene is another important component of restoring total health to the alcoholic.

Alcohol, Alcoholism, Alcoholics, and Treatment

Beverage alcohol, ethanol, is one of the most widely used psychoactive drugs known to man. It has been a source of both pleasure and destruction since the beginning of humankind. Whenever

and wherever people have existed, alcohol has usually been there too. Evidence exists that prehistoric people as long as 200 million years ago had the four basic ingredients--sugar, water, yeast, and mild warmth--needed to produce it (Ravi, 1950). We have ample testimony that since the beginning of written history the Egyptians, Hebrews, Greeks, and Romans were familiar with intoxicating beverages, both wines and stronger drinks, and their effects on these cultures (Loeb, 1943; McKinlay, 1950, 1953). Throughout the ages many have applauded alcohol as a source of relaxation and pleasure, one that nourishes the body and renews and sustains health. However, history has also shown a long and sad account of the destruction that the irresponsible use of alcohol has produced upon individuals, families, and society.

Information from the Southeastern Medical Conference on Alcoholism (1978) indicated that alcoholism is not a crime, a sin, a weakness of the will, a disorder that is the same in all afflicted people, or a disease that responds to only one type of therapeutic intervention. Authorities agree on what alcoholism is not, but find defining what it is can be almost as perplexing as the entity itself (Estes & Heinemann, 1982; Kinney & Leaton, 1983; Linsky, 1972; Marconi, 1967). Many Americans have definite opinions about alcoholism (Albrecht, 1973) and their attitudes, beliefs, and values about alcohol use and abuse of alcohol vary (Estes & Heinemann, 1982; Ray, 1983; Strachan, 1982; Ward, 1983). Even though there is general acceptance of the concept of alcoholism, numerous definitions are available (Alcoholics Anonymous, 1939, 1976; American Medical Association, 1968,

1977; American Psychiatric Association, 1968, 1989; Ausubel, 1961; Estes & Heinemann, 1982; Gitlow, 1973; Jellinek, 1946, 1960; M. Keller, 1960; Mann, 1959, 1968; National Council on Alcoholism, 1972; Strachan, 1982; World Health Organization, 1951, 1952). The common aspects of these definitions include dependence on the drug alcohol both physically and psychologically, loss of control over drinking, and interference with normal functioning in one or more areas of a person's social life. Alcoholism is a complex disorder. According to the Criteria Committee National Council on Alcoholism (1972), and in agreement with the American Medical Association, the American College of Physicians, the American Psychiatric Association and other bodies, alcoholism fits the definition of disease given in Dorland Illustrated Dictionary (1965):

A definite morbid process having a characteristic train of symptoms; it may affect the whole body or any of its parts, and its etiology, pathology, and prognosis may be known or unknown. (p. 468).

Further review of the disease concept of alcoholism indicates that it is a progressive, chronic, and terminal disease. It cannot be cured, but it is treatable and can be arrested (Gitlow & Peyser, 1980; Southeastern Medical, 1978; Strachan, 1982). The illness is characterized as progressive since it continues to get worse as alcoholics progressively lose control over the amounts, the how, when, where, and what they drink until finally smaller and smaller amounts of alcohol can reduce the alcoholic to a state of complete hopelessness (Sherouse, 1983; Strachan, 1982). The Commission of Chronic Disease defines a chronic illness as "any impairment . . . that . . . has one or more of the following characteristics: is permanent; leaves

residual disability; is caused by nonreversible pathological alteration; requires special training of the patient for rehabilitation; or may be expected to require a long period of supervision, observation of care" (Smolensky, 1982, p. 269). Alcoholism is a chronic disease. It is an illness that cannot be cured (Johnson, 1980). In most cases it progresses over an extended period of time, and it is a permanent condition (Strachan, 1982). It can leave residual disabilities and it requires special training of the patient for rehabilitation since the alcoholic must learn to adjust to life without a dependency on alcohol (Gitlow & Peyser, 1980; Johnson, 1980; Kinney & Leaton, 1983; Schuckit, 1979). Alcoholism is a terminal illness that if left untreated will shorten lifespan and ultimately result in death (Johnson, 1980; Sherouse, 1983).

While theories on the cause of alcoholism are numerous, many researchers agree that it is a multifactorial disorder (Barnes, 1979; DeLuca, 1981; Zimberg, 1978), thus presenting health care professionals with problems in the diagnosis and management of alcoholism (Douglas, 1976; Kinney & Leaton, 1983).

Most researchers agree with or have developed a modified version of Jellinek's (1952; 1960) alcohol addiction phases in the drinking patterns of alcoholics (Davies, 1979; Foster, Horn, & Wanberg, 1972; Horn, 1976; Kinney & Leaton, 1983; Mann, 1959; Moberg, 1976, 1978; Strachan, 1980; Ward, 1983; Wamberg & Horn, 1973). The application of these four phases--prealcoholic, prodromal, crucial, and chronic--often aids in the diagnosis of alcoholism. The Criteria Committee (1972) of the National Council on Alcoholism (NCA) has set forth diagnostic

criteria to be used to identify individuals at multiple levels of alcohol dependence. In concert with NCA, the American Medical Association (1979) developed guidelines for diagnosis, treatment, and referral of alcoholics. Knowledge and skills in the criteria and guidelines for diagnosis and treatment of alcoholics are essential for all health care professionals.

Accepting the premise that alcoholism is a disease makes recognizing and accepting that it is no respecter of persons easier (Mann, 1958; Strachan, 1982). Identifying the alcoholic is difficult. It is almost impossible to tell by behavior alone. More than one person has been called an alcoholic who is not, but many people with serious drinking problems, even alcoholism, manage to conceal the problem. More than 80% of adult Americans drink alcoholic beverages at one time or another, so alcoholism is a potential hazard to almost everyone. Terhune (1975) said:

Man has enjoyed alcohol's pleasant effects for a long time and lived by the myth that he will not become addicted. But let's explore this myth right now. In the course of a lifetime, one out of eight adults now living in the United States will become either alcoholic or seriously handicapped by alcohol dependency. Everyone is vulnerable. . . . (p. 5)

Alcoholics are found in all walks of life: rich and poor, educated and illiterate, godly and ungodly, young and old, men and women, atheist and Christian, normal and abnormal, and everything in between (Alcoholics Anonymous, 1976; DeLuca, 1981; Mann, 1958; Ward, 1983).

The major difference between alcoholic drinking and any other type of drinking is the alcoholic's consistent lack of control.

Regardless of the stage of alcoholism, alcoholics can neither predict nor determine when they will stop drinking. While there are as many definitions of an alcoholic as there are for alcoholism, researchers (Gitlow & Peyser, 1980; M. Keller, 1962; Wexberg, 1951) argue that the key definitional components depict alcoholics as persons who, once they start drinking, cannot guarantee when they will stop or what their behavior will be. Additionally, alcoholics experience serious social or health problems related to alcohol (Alcoholics Anonymous, 1976; Cahalan, 1969, 1970; Estes & Heinemann, 1982; M. Keller, 1962; Ray, 1983; Ward, 1983; Woodruff, Goodwin, & Guze, 1974).

According to the Comprehensive Alcoholism Prevention Rules of HHES (1979), individuals in treatment for alcoholism in publicly funded alcoholism treatment facilities have experienced both health- and social-related problems. In an effort to provide a comprehensive treatment modality, the State of Florida mandates the following services for alcoholic clients: psychosocial evaluation prior to or immediately after assignment to treatment; rehabilitation services to prevent continuing deterioration of clients' existing level of functioning and to maximize all potential that alcoholics may have in self-help skills, social skills, recreational skills, and work skills; care services including room and shelter, personal care, nutritious meals, income maintenance, transportation, and supervised observation; and treatment and counseling services entailing individual and group therapy, family, couple or parent counseling, and educational, motivational therapy. These comprehensive treatment services are in agreement with the treatment provisions outlined in the Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment and Rehabilitation Act of 1970.

The Effects of Alcohol and Tobacco on Oral Health

Alcoholism increases the risk of a multitude of health-related problems. Heavy drinking and the use of tobacco products are concomitantly associated (Harwood, 1979). The use of both alcohol and tobacco are positively correlated with poor oral hygiene habits (Dunkley & Carson, 1968; Geist, Evans, & James, 1979).

Many investigators in clinical epidemiologic studies have associated alcoholism and cirrhosis of the liver with cancer of the mouth and pharynx (Henefer, 1966; Kamionkowski & Fleshler, 1965; A. Keller, 1963, 1967; Pindborg, 1963; Pindborg, Renstrup, Jolst, & Roed-Peterson, 1968). Investigators have found cancer of the mouth, tongue, pharynx, larynx, oropharynx, esophagus, and liver in patients who were found to be alcohol-dependent or to have alcohol-related cirrhosis (Eckardt et al., 1981). In the United States, these sites represent 6.1% to 9.1% of all cancers in the white population and 11.3% to 12.5% in the black population (Tuyns, 1977). In other parts of the world where these cancers occur with high frequency, researchers have identified heavy drinking as a causative factor (Groupe & Salmoiraghi, 1979; Schmidt & DeLint, 1972). Jellinek (1952) specified that oral cancers may occur singly or in varying conditions with other physiological diseases in the chronic phase of alcoholism. There is little doubt that ethanol ingestion can be dose-related with elevated incidence of oral cancer, cancer of the oropharynx and the esophagus (Gitlow & Peyser, 1980). According to Eckardt et al. (1981), these observations have stimulated research into the possible role alcohol might play in carcinogenesis. While the etiology of

cancer remains unknown, a joint National Cancer Institute--National Institute on Alcohol Abuse and Alcoholism Conference reviewed several mechanisms by which alcohol might exert a carcinogenic effect (Groupe & Salmoiraghi, 1979). Among possibilities investigators are currently studying are effects of prolonged and repeated contact of body tissues with alcohol, especially in strong solutions; alcohol-induced immunologic suppression; alcohol as a cocarcinogen with tobacco; and indirect consequences of heavy alcohol use, such as malnutrition, anemia and poor hygiene.

Alcohol and tobacco appear to act synergistically in the pathogenesis of oral cancer. Wynder and Stellman (1977), in reporting the results of a study with cancer patients, noted the possible cocarcinogenic effect of tobacco and alcohol as a dose-response relationship for ethanol at constant tobacco usage in both men and women, indicating that the risk of cancer of the mouth, tongue, pharynx and larynx increased with the amount of alcohol consumed. Tuyns, Pequignot, and Abbaticucci (1979) found that the combination of alcohol consumption and smoking increased the risk of esophageal cancer in a multiplicative fashion. Other studies have also supported the association of the chronic use of alcohol and tobacco and the presence of lesions involving the oral cavity. A. Keller and Terris (1965) concluded that heavy drinking and tobacco use are significant for cancer of the floor of the mouth, oropharynx, tongue, and other intraoral sites. Lowry's study (1975) of 100 cases of oral and pharyngeal cancers revealed that 88% of patients with cancer of the tongue, base of the tongue, oral and hypopharynx, floor of the mouth, and carcinoma

in the neck nodes were alcoholic. Vincent and Marchetta (1963) studied 196 patients with a diagnosis of oral and pharyngeal cancers and indicated that 92% drank excessive amounts of alcohol daily and 85% of these patients smoked one or more packages of cigarettes a day.

Research studies show a positive correlation of tobacco use with leukokeratosis niconti palati (leukoplakia of the palate), leukokeratosis nicotina glossi (smoker's tongue) as well as other oral leukoplakias or precancerous lesions (Baric, Alman, Feldman, & Chauncey, 1982; Farman & Van Wyk, 1977; Hartselle, 1977; Loftus, Baric, Kapur, & Chauncey, 1981; Mosadomi, Shklar, Loftus, & Chauncey, 1978; Siefert, 1975). Leukoedema lesions, velvet-like diffuse wrinklins frequently located to the buccal mucosa of the mouth, are positively correlated with tobacco use. A study conducted by Axell and Henricsson (1981) demonstrated that leukoedema was significantly more prevalent among individuals with some daily tobacco habit (60.0%) than among those who did not smoke (36.3%). Smoking has also been correlated with oral lichen planus (Neumann-Jensen, Holmstrup, & Pindborg, 1977) as well as other cytologic abnormalities (Bastiaan & Reade, 1976; Hillman & Kissin, 1976).

The literature supports a strong association of heavy drinking and smoking in the same individuals. A study by Dreher and Fraser (1968) showed that in a group of alcoholics 93% of men and 91% of women were smokers. These proportions are considerably higher than those in the general population. Research studies also support the fact that both smokers and heavy drinkers exhibit poor oral hygiene (Bastiaan & Waite, 1978; Larato, 1972). Chronic alcoholics

are, therefore, more susceptible to the effects of tobacco and inadequate oral hygiene on plaque and calculus formation as well as the subsequent development of periodontal disease.

Bastiaan and Waite (1978) compared the rate of plaque formation in a group of smokers with that of a group of non-smokers. The Silness and L  e (1964) mean Plaque Index scores showed a trend for plaque to form more rapidly in smokers than non-smokers. Sheiham (1971) demonstrated that much of the increased periodontal disease seen in smokers is explained by the higher plaque levels present in smokers. While research indicates that tobacco smoke has some antibacterial properties (Kier, Yamaski, & Ames, 1974), other studies have demonstrated no effect on oral microbial flora in the reduction of bacterial plaque (Colman, Beighton, Chalk, & Wake, 1975; Kenney, Saxe, & Bowles, 1975). Bergstrom (1981) clearly demonstrated that smoking has no antibacterial potency to prevent or restrict plaque formation on tooth surfaces. This study further showed that the amount of plaque was comparatively larger and the plaque accumulation rate was faster during the period when study subjects were smoking.

Both plaque accumulation and calculus formation are precursors to periodontal disease. Kowalski (1971) found that smoking has a direct effect on increased formation of both supragingival and subgingival calculus. Sheiham (1971) further linked an increase of oral debris and calculus and more severe periodontal disease in smokers. This study also demonstrated a decrease in oral cleanliness among smokers. In a chronological review of the literature on smoking and periodontal disease, Schwartz and Baumhammers (1972) pointed out

that clinical researchers, with two exceptions, found that smoking is an important local predisposing factor in both gingivitis and periodontal disease. Recent studies by Bastiaan (1979), Preber, Kant, and Bergstrom (1980), and Seffrin and Grove (1982) support previous research that oral hygiene is poorer in smokers than in non-smokers. Also, the severity of gingivitis and periodontitis is greater in smokers and this is due to increased plaque deposition on tooth surfaces. In a 1983 study by Bergstrom and Floederus-Myrhed, the association between poorer levels of periodontal health and smoking remained even after accounting for factors such as age, race, sex, oral hygiene and socioeconomic status.

The Importance of Self-Perception in Motivating Alcoholics

Self-esteem and self-concept are vital components in alcoholism recovery as well as in the learning process. While there is controversy regarding the role of negative self-image as a precursor to addiction, the literature supports the fact that active alcoholics have a poor self-image and low self-esteem (Blane, 1970; Johnson, 1980). Self-perceptions are multi-dimensional consisting of self-feelings regarding the roles people play and the competency they feel in these roles as well as individuals' views of personal attributes including physical appearance (Beane, 1982). Thus, the ideas of self-concept and self-esteem refer to a collage of self-views including self as a spouse or parent, as an alcoholic, as a learner, or as self in any role or attribute of one's life. Researchers also suggest that self-perceptions are related to various aspects of the educational process including learning, academic achievement, and perceptions of others (Beane, Lipka, & Ludewig, 1980).

After many years of inability to control his or her life, the alcoholic has feelings of low self-worth. This fact is evidenced by the consistent reporting of low self-concept scores in alcoholic individuals (Vanderpool, 1969). Feelings of inferiority, disliking of self, isolation, and anxiety are common results of alcoholism. When these negative feelings exist, the human needs for growth and self-actualization are hindered, and motivation toward positive action is decreased.

Maslow (1954) proposed that the concept of growth motivation be used in lieu of motivation based on deficiency or need. A movement toward health which implies change, growth, and learning entails satisfaction of basic needs (Maslow, 1962). Maslow's model includes a hierarchy of needs from physiological needs through security, social and esteem needs to self-actualization. Once the lower needs level is satisfied, the higher level needs come out. Maslow's hierarchy has been used extensively in dentistry, especially in plaque control for oral hygiene (Huntley, 1980). It has also been used widely in the therapeutic aspects of alcoholism recovery (Brecher, 1972). For the alcoholic to successfully move through the realms of Maslow's hierarchy requires learning to value and motivation to feel good about oneself.

With the progression of alcoholism, decreased self-esteem usually results in a lack of attention to grooming and personal appearance. This outward appearance may, in fact, be an accurate reflection of the deteriorated emotional and physical condition (Kinney & Leaton, 1983).

The dental literature supports the fact that one of the problems associated with chronic alcoholism is long-term neglect of the dentition (Weber, Sherman, & Stoopack, 1979). Dental neglect includes tooth loss, multiple carious lesions, and periodontal disease. Dunkley and Carson (1968) reported that the dental needs of alcoholics as a group appear to be significantly higher than the needs of others of the same age in the general population. The manifestation of dental neglect, including halitosis, will only persist in contributing to the alcoholic's poor self-image.

Since both recovery from alcoholism and improvement in oral hygiene status are clearly linked to increased self-esteem and self-perception, the skillful and sensitive health professional must perceive cues in the alcoholic's verbal and non-verbal expressions about self. These cues can be useful guides in determining the therapeutic modality to which the alcoholic will respond. These cues are also beneficial in ascertaining the type of individualized instruction that would motivate the alcoholic in improving oral hygiene techniques.

Zimberg (1978) listed assertive-behavior training, self-rewards, and behavioral actions in the real world as three mechanisms for improving self-esteem. Verdery (1973) stated that group experiences and relationships provide the best testing ground for alcoholics in dealing with their emotions and with problems of living. In particular, feelings of isolation and self-esteem are improved considerably in group experiences as opposed to one-to-one therapy. Vaillant (1983) cited several studies that support the theory of

group experience or peer support groups as the best means of altering attitudes by affecting self-esteem. The Alcoholics Anonymous (AA) model provides a feeling of group solidarity that in turn provides a sense of belonging and an opportunity to share emotional problems (Trice, 1983). For newly sober alcoholics, belonging to a group of caring individuals who have found solutions to the typical problems encountered by alcoholics helps to alleviate feelings of isolation and enhances self-worth (Vaillant, 1983). The philosophy of the AA model is frequently used in alcoholism therapy because of the high success rate of recovery that is provided in group cohesiveness by generating a sense of belonging and self-esteem (Moore & Buchanan, 1968).

Kinney and Leaton (1983) defined group therapy as "the use of any group experience to promote change in the members" (p. 199). They advise that it is better to have different types of groups available and to have members participating in several groups in order to effectively meet individual needs. These authors suggest four major group focuses--education, self-awareness, problem solving, and activity/resocialization.

Regardless of the type of group, certain functions that are initially the responsibility of the group leader need to be performed. Kinney and Leaton (1983) suggested the following roles:

- Initiating--suggesting ideas for the group to consider, getting the ball rolling.

- Elaborating or clarifying--clearing up confusion, giving examples, expanding on other persons' contributions.

- Summarizing--pulling together loose ends, restating ideas.

Facilitating--encouraging others' participation by asking questions, sharing interest.

Expressing group feelings--recognizing moods and relationships within the group.

Giving feedback--sharing your response to what is happening.

Seeking feedback--asking for others' responses to what you are doing. (p. 201)

While eventually group members share the responsibility for these functions, the group leader should always serve as the role model. The leader not only sets the example of how to act in a group but also demonstrates what healthy behavior looks like.

The reaction of others to a person helps shape that person's concept of self (Hildegard, 1949). Sincere empathy for the patient is of prime importance in working with alcoholics (Gitlow & Peyser, 1980). Investigators have indicated that attitude, warmth, empathy, caring, and technique of those with the alcoholic can make a major difference in changing behaviors (Strachan, 1982).

Accurate empathy is defined by Truax and Carkhuff (1967) as "both the therapist's sensitivity to current feelings and his verbal facility to communicate this understanding in a language attuned to the client's current feelings" (p. 46). While others may question the influencing value of empathy, Gladstein (1977) emphasized its importance in that most psychotherapy and counseling texts stress the role of empathy in working with people.

Society is becoming increasingly aware of the importance of the interpersonal interaction between teacher and student in affecting cognitive growth (Aspy & Roebuck, 1977). These skills revolve around a teacher's ability to provide certain core conditions originally

outlined by Rogers (1957) as "the necessary and sufficient conditions for any helping relationship" (p. 96). In addition to others, the conditions of warmth, empathy, and genuineness are essential ingredients found among successful teachers and therapists (Aspy & Roebuck, 1977; Harbach & Asbury, 1976).

Social scientists generally agree as to the importance of these conditions in any helping relationship. Several investigators have indicated that students taught by teachers who effectively communicate high levels of warmth and empathy are more likely to exhibit growth on indices of functioning (Aspy, 1969; Aspy & Hadlock, 1967; Aspy & Roebuck, 1976). When warmth is defined as the professionals' ability to demonstrate that they care for clients as persons, the degree to which the professional is able to communicate caring for the individual as a person of worth aids in increasing a positive interpersonal relationship. Seldom is warmth communicated without empathy (Gazda, Asbury, Blazer, Childers, & Walters, 1977). Empathy refers to the health professional's ability to communicate an understanding of the client's interpersonal communications. Empathetic understanding must be expressed in words for the client. Rogers (1957) stated that "unless some communication of these attitudes has been achieved, then such attitudes do not exist in the relationship as far as the client is concerned, and the therapeutic process could not, by our hypothesis, be initiated" (p. 99). In this type of communication, the client must perceive the conditions of empathy and warmth in order for them to be effective teacher or therapist conditions.

"Advocates of affective education maintain that concerns for student attitudes, feelings, and emotions are important facets of the

learning process . . ." (Combs, 1982, p. 495). Combs also supported the research of Aspy, Roebuck and others on the importance of self-concept, belonging, being cared for, and the group experience as methods for significant increases in learning and growth.

In dealing with alcoholics as adult learners, the literature supports the fact that adult learners are goal directed and learning is facilitated by a problem-centered approach that has direct applicability (Tarnow, 1979). Additionally, adults prefer short-term workshops and discussion groups as methods of learning (Carp, Peterson, & Roelfs, 1974). The alcoholic adult needs to feel secure and have a sense of belonging. When the teacher applies techniques of affective education, cognitive learning will also occur (Newberg & Love, 1982). Applying the techniques of affective education can motivate adults in improving oral hygiene (Huntley, 1981) which will in turn promote positive self-esteem.

Health professionals who work with alcoholics must be cognizant of the necessity of applying the components of affective education in working with adults. These health professionals must not only be empathetic, but they must communicate empathy and warmth to the patients. In so doing, they can promote positive self-perceptions on the part of the alcoholic and, as Vaillant (1983) stated, when the alcoholic's self-esteem becomes more positive that person regains the capacity to listen. When this occurs, the learning process is initiated and the alcoholic individual can be motivated in an educational experience.

The Significance of Dental Health Instruction

The daily removal of bacterial plaque is one key to reducing the incidence of oral periodontal disease, gingivitis, and dental caries. Dental health education offers the best means of introducing patients to the necessary mechanics of plaque removal. However, while many dentists and hygienists believe that they offer effective patient education, frequently the type of education they provide will not result in behavior change (Coombs, 1980). The patient may receive only factual information regarding the disease process or instruction in brushing techniques. These types of information processes have failed in many settings because the central principles related to behavior change are lacking (Cohen & Lucye, 1970; Levey, Weinstein, & Milgrom, 1977). Factual information by itself is not effective in motivating people to adopt new habits or alter current behavior. Even motivated individuals who are offered only factual information are often unable to establish and maintain new dental habits (Petrie, 1979).

Studies by Coombs (1980), Penland (1982), and Petrie (1979) support the fact that knowledge alone is not an effective criterion for change in oral health status. Moore (1978) further stated that an individual's dental IQ would make a major difference in the determination of an effective instructional approach to change in dental habits.

Researchers clearly indicate that in order for educational efforts to be effective their initiators must take into account individual differences in people (Coombs, 1980; Craft, 1978; Emery,

1975; Gambrall & Gernert, 1975). According to Coombs (1980), the development of dental health educational programs should include assessment of the patient's individual educational needs, an educational diagnosis, patient motivation to achieve the prescribed preventive behaviors, and a system for monitoring and reinforcing the patient's progress toward achieving optimum goals.

The use of a variety of methodologies in dental health instruction is well documented. The one-to-one method is advocated as essential in the initial phase of instruction (Gambrall & Gernert, 1975). Petrie (1979) suggested the concept of co-diagnosis as the answer to learning. Using this concept the dental instructor and the patient learn together so that the teaching process becomes one of facilitation with the dental auxiliary acting as the facilitation. Durlak and Levine (1975) showed that group interaction can also be effective in producing sensitive changes in oral health. In their study 36 patients completed a group-oriented oral health program. The results demonstrated decreased gingival bleeding and reduction of periodontal pocket depth measurements. Coombs (1980) also reported that educating groups strengthens the one-to-one approach. Furthermore, the group approach has been shown to significantly increase the likelihood of permanent dental hygiene changes in behavior among individuals. In either individual or group instruction, active patient participation is essential (Crunk, 1982; Evans, 1978; Huntley, 1981; Martin & Mauldin, 1983).

The dental literature is as varied on the types of effective techniques as it is on types of methodologies. In previous studies, improvement in plaque levels occurred with little or no personal

contact. Bratthal (1967) brought about improved oral hygiene by programmed self-instruction, while Zaki and Brandt (1971) demonstrated the successful use of audio-visual machines alone in teaching oral hygiene. In comparing person-to-person chairside instruction with programmed instruction, Radentz, Barnes, Carter, Ailor and Johnson (1973) demonstrated that closed circuit television was as effective as chairside instruction in teaching dental flossing procedures, and further that the television method was more efficient than the one-to-one method. However, these authors also recommended investigating the effect of combining the two methods of instruction. More recent studies support the necessity of individual contact (Bailey, 1975; Barnett & Kowal, 1982; Cramner, Sandell, & Soder, 1981; Dodson, 1984; Emery, 1975) as well as the combination of the two methods (Bailey, 1975; Decker, 1978; Evans, 1978; Kerschbaum & Stapf, 1977; Neiburger, 1981; Zaki & Brandt, 1971).

While the dental literature supports multifaceted approaches, based on individual differences, motivation consistently emerges as the prime factor in oral hygiene improvements. In order for dental health educators to motivate patients, they must learn counseling skills that can facilitate patient compliance (Martin & Mauldin, 1983). Strack, McCullough and Conine (1980) compared compliance with oral hygiene instruction and hygienists' empathy. While they found no statistical significance between compliance and hygienists' empathy, they found a positive relationship between hygienists' empathy and their patients' observance of oral hygiene instruction.

Truax and Mitchell (1971) analyzed the attributes of psychotherapists who were effective in producing behavioral change in their patients. Results from this study showed three characteristics of an effective psychotherapist: this person (a) was nonphony, nondefensive, authentic, or genuine; (b) provided a safe, nonthreatening, secure, and trusting atmosphere through acceptance of self and through positive regard, love, valuing, and nonpossessive warmth for the patient; and (3) had a high degree of rapport and accurate empathic understanding of the patient. Even though particular plaque control techniques may vary from one dental auxiliary to another and from one patient to another, the underlying personality characteristics are the same; therefore, the characteristics outlined by Traux and Mitchell could serve as guidelines for an effective dental educator (Hausmann & Hausmann, 1976; Walsh, 1979).

More important than the dental information related is how the hygienist relates to the patient (Martin & Mauldin, 1983). In order to facilitate patient motivation, a hygienist must approach the patient confidently (Crunk, 1982) and demonstrate credibility by a confident, warm, and pleasant tone of voice (Holtzhausen, 1981). The hygienist must also be observant of nonverbal behaviors (Martin & Mauldin, 1983; Runyon & Krolls, 1978) and practice active listening (Barnett & Kowal, 1982). Dental health professionals can achieve these roles only when they themselves are highly motivated to spend the time, patience, and energy to determine each patient's needs and to guide and encourage each to a self-care preventive hygiene program (Crunk, 1982; Seiwert, 1979; Shulman, 1974).

According to Walsh (1979) one person cannot directly motivate another. Motivation must come from within the individual. In order to effectively bring about behavioral change the dental health educator must acknowledge the existence of need at all five levels of Maslow's hierarchy (Maslow, 1954). In addressing patients' needs the educator can strive to awaken or stimulate the motivation of patients (Huntley, 1981; Walsh, 1979). Other dental researchers advocate that in addition to recognizing patients' needs, dental professionals must motivate patients to become more self-reliant in their plaque control programs (Hausmann & Hausmann, 1976). One method of assuring this self-reliance is based on the Internal-External Locus of Control developed by Rotter (1976). Having made a determination on the patients' locus of control, the professional can effectively individualize instruction (Ayer, 1979; Barnett & Kowal, 1982). In using an affective model for patient motivation, Huntley (1981) emphasized that one key in motivating behavioral change is the shift from external authority to internal control. She also advocated the therapeutic alliance as an alternative approach. This approach is based on John Dewey's inquiry or discovery learning (Rokeach, 1973). In the therapeutic alliance, the patient is placed in control and becomes the authority. The therapeutic alliance between the patient and professional is initiated once the patient is no longer dependent on the professional.

If behavioral change is to occur, the professional must plan patient instruction carefully. An assessment of needs, skills and resources is essential (Gambrall & Gernert, 1975; Holtzhausen, 1981).

Although the approaches may vary, researchers agree on the following major tenets of motivating patients to effectively change and maintain their level of optimum dental health: the establishment of communication, evaluation of individuals in terms of possible motivational incentives, use of a variety of motivational techniques such as self-pacing and delivering incremental amounts of information, supervision of patients' practice, repeating instruction, providing immediate feedback, giving positive reinforcement, and using mechanical aids that have demonstrated potential value (Bakdash, 1979; Barnett & Kowal, 1982; Bourne, 1983; Coombs, 1980; Hausmann & Hausmann, 1976; Huntley, 1979; Moore, 1978; Runyon & Krolls, 1978; Seiwert, 1979; Shulman, 1974; Tsamtsouris, 1978).

The use of toothbrushes has long been a part of oral hygiene. It is the principal instrument in general use for plaque removal as part of dental disease control (Wilkins, 1983). Currently, innumerable commercially developed toothbrushes are on the market. These brushes not only vary in size and shape, they also are constructed of both natural and artificial fibers. The bristles vary from soft through medium to hard. Patients who have not received professional advice concerning the type of brush to use for their particular oral characteristics have generally selected brushes on the basis of cost, advertising claims, availability, habit, or family tradition (Wilkins, 1983).

Controversy exists on how regularly bacterial plaque must be removed from the teeth in order to maintain oral health (Ariaudo, 1971; Armin, 1971; Kitchin, 1956; Löe, 1971). Researchers indicate

that as the frequency of personal oral care increases, plaque levels decrease (Greene & Vermillion, 1960; McKendrick, Barbenel, & McHugh, 1970). Still other considerations such as the quality of toothbrushing and a controlled environment to evaluate patients' frequency of brushing are important. Controlling for these variables, Lang, Cummin, and Löe (1973) conducted a study comparing brushing frequency as it related to plaque development and gingival health. They determined that effective oral hygiene procedures at intervals of 48 hours are compatible with gingival health. Gingivitis developed when the intervals between complete removal of bacterial plaque exceeded the 48 hours.

According to Wilkins (1983), no set rule on the frequency of brushing required for effective oral hygiene is applicable. Due to individual variations, the dental care professional should place emphasis on patient education in plaque removal rather than on frequency of brushing. For individuals who have difficulties in changing oral hygiene habits, one thorough daily brushing is better than several incomplete attempts.

Throughout the history of dentistry, dental health professionals have advocated numerous toothbrushing techniques. In their time Goldman, Schluger, Fox, and Cohen (1964) listed at least seven methods of toothbrushing--those of Charters, Stillmans, Bells, Fones, Bass, and Hirschfields, and the use of powered brushes. Wilkins (1983) listed eight methods--Roll or Rolling Stroke, Bass' Sucular Brushing, Modified Stillman, Charters', Fones' Circular Brushing, Leonard's Vertical Brushing, Smith's Physiologic Method, and the Scrub Brush Method.

A review of the dental literature indicates divergent opinions on the effectiveness of toothbrushing techniques as well as different types of toothbrushes. Only a few investigators have conducted well-defined and controlled clinical comparisons. Some researchers have shown the cleaning effect of different methods that used the same toothbrush (Frandsen, Barbano, Suomi, Change, & Houston, 1972; Hansen & Gjermo, 1971) while other authors have shown the effect of different toothbrushes used with the same brushing method (Padbury & Ash, 1974; Schifter, Emling, Seibert, & Yankell, 1983; Vowles & Wade, 1977). Studies by Arai and Kinoshita (1977) and Carter, Barnes, Woolridge and Ward (1974) demonstrated effective cleaning using various toothbrushes with different toothbrushing methods. O'Leary (1970) wrote that "one cannot state that a particular toothbrush or brushing technique is clearly superior to another" (p. 625). Shick and Ash (1961) stated that a new toothbrush with written instructions seemed to be more important than the type of toothbrush or brushing method. Davis (1980) and Less (1972) declared that it was not the technique but rather the thoroughness with which brushing is conducted. Other reserach indicated that the important factor was the type of dentifrice used on the brush ("Toothbrushing," 1981). While the dental literature supports diverse efforts for effective plaque control, most dental researchers agree that toothbrushing does not completely remove bacterial plaque from all tooth surfaces (Arai & Kinoshita, 1977; Carter, Barnes, Woolridge, & Ward, 1974; De La Rosa, Guerra, Johnston, & Radike, 1979; Frandsen, Barbano, Suomi, Change, & Houston, 1972; Kleber, Putt, & Muhler, 1981; Vowles & Wade, 1977).

Brushing is relatively ineffective in removing interproximal deposits of plaque. The use of dental floss appears to have been proposed by Parmby in 1819; however, not until 1948 did Bass (1948) introduce what he considered the ideal characteristics of dental floss. In addition to waxed and unwaxed dental floss, numerous other products are available for interdental cleaning: dental tape, perio-aid, Stim-u-Dent, Go-Between, interproximal brushes, toothpicks, rubber cone stimulators, and oral irrigators. In studies conducted to evaluate these aids, dental floss is generally indicated as the most effective for interdental plaque removal (Gjerme & Flotra, 1970).

Bergenholtz, Bjerne and Vikstrom (1974) demonstrated that rectangular toothpicks removed plaque only from the buccal part of the proximal tooth surface, but triangular toothpicks and dental floss are effective on both the buccal and lingual parts of the proximal and axial surfaces. In a later study Bergenholtz and Brithon (1980) showed that in general dental floss had a higher plaque-removing potential than triangular toothpicks, especially on lingual axial surfaces. The effects of other interdental aids have also been studied. In comparing the effectiveness of plaque removal by the proxy-brush and rubber cone stimulator, Nayak and Wade (1977) found no significant differences; however, a majority of patients preferred the proxybrush. Boudreaux (1977) compared embroidery thread with unwaxed dental floss for the effect on interdental gingiva and found the thread showed significantly less gingival inflammation. In evaluating a new elastomeric interdental cleaning aid, Emling, Cohen and Yankell (in press) stated that Go-Betweens were as effective as

dental floss in plaque removal and cleaned the teeth more rapidly. In another recent study, Abelson, Barton, Maietti and Cowherd (1981) found that while the result use of either Super Floss or unwaxed dental floss resulted in improved gingival health, Super Floss was superior to unwaxed dental floss. Barton and Diamond (1980) compared the effectiveness and patient acceptance between hand-held floss and dental floss held by a mechanical device. Both were equally effective in reducing gingival bleeding, but patients preferred the mechanical flossing device by a ratio of four to three.

Most dental health professionals recommend the use of either waxed or unwaxed dental floss as the most appropriate interproximal cleaning device. Some dental researchers have found waxed floss to be more effective in plaque removal (French & Friedman, 1975); others have reported unwaxed dental floss to be slightly to moderately more effective than waxed floss (Carter, Barnes, Radentz, Levin, & Bhaskar, 1975; Wheatcroft, 1976; Voigt & Elias, 1984); and finally, several studies indicated no significant difference between waxed and unwaxed dental floss in the removal of interproximal bacterial plaque (Finkelstein & Grossman, 1979; Lamberts, Wunderlich, & Caffesse, 1982; Lobene, Soparkar, & Newman, 1982).

Fluoride as an Antimicrobial Agent

Fluoride is made available to the tooth structure, periodontal tissues, and oral flora of the mouth by two general means: systemically, through circulation to developing teeth and supporting structures, and topically, directly to the exposed surfaces of the teeth and the

periodontium. As a systemic nutrient, fluoride is available from prescribed dietary supplements, in small amounts from certain foods, and predominately from community drinking water, either naturally or by fluoridation. Topically, fluoride can be applied by a professional or self-administered. Self-application of fluoride includes mouth-rinse or gels, chewable tablets, and dentifrices.

Two basic factors may be responsible for the action of fluoride against dental caries and periodontal disease. These actions are related to the amount of fluoride contained in the tooth surface and the enzyme-inhibiting or antibacterial effect of fluoride within the dental plaque.

A number of topical fluoride compounds have been studied as potential caries preventive agents; however, the three agents currently in use--neutral sodium fluoride (NaF), acidulated phosphate fluoride (APF), and stannous fluoride (SnF_2)--have proved superior in inhibiting dental caries (Mellberg, Ripa, & Leske, 1983). These same three agents predominate in the field of study on antimicrobial agents used to prevent periodontal disease.

Many investigators have considered fluoride in relation to control of microorganisms associated with dental caries (Bowen & Hewitt, 1974; Jenkins, 1963; Yost & Van Denmark, 1978). Many studies have substantiated the ability of fluoride to prevent dental caries. Human studies have shown that fluoridated drinking water can prevent caries on teeth both prior to and after tooth eruption (Backer-Dirks, 1966; Backer-Dirks, Houwink, & Kwant, 1961; Bibby, 1944; Heifetz & Horowitz, 1974; Horowitz, Heifetz & Law, 1972).

Studies on the topical application of fluoride demonstrated that fluoride is beneficial as a preventive caries agent (DePaola & Mellberg, 1973; Muhler, 1960; Wedlock, Maitland, & Brudevold, 1965), and as a caries reduction agent (Loesche, 1979). Animal studies have also provided supportive evidence that the topical application of fluoride is effective as an anticaries agent (Caufield, Navia, Rogers, & Alvarez, 1981; Speirs, 1967). Socransky (1970, 1977) established the etiological role of bacteria in periodontal disease and further verified the presence of subgingival bacterial plaque in destructive periodontitis lesions. Listgarten (1976) and Newman and Socransky (1977) stated that the various periodontal conditions are associated with microbial floras which differ quantitatively and qualitatively. Dentistry has generally accepted the idea that the microbes present in the accumulation of bacterial plaque on the teeth are associated not only with dental caries but also with periodontal disease (Tinanoff & Camosci, 1980).

While authorities have long acknowledged the fact that fluoride has a significant effect on dental caries, past and recent studies have demonstrated that fluoride can also have a bacterial effect on the organisms responsible for periodontal disease. Loesche (1979) described the use of topical fluoride to chemically alter the microbiota of plaque. In vitro studies have shown that fluoride can reduce the organisms found in plaque associated with periodontitis (Keyes & Englander, 1975; Lerner, 1974; McDonald, Schemehorn, & Stoukey, 1978). In vivo studies (Loesche, Murray, & Mellberg, 1973) showed that fluoride inhibits microbial growth and metabolic activity of supra-gingival plaque. McDonald et al. (1978) and Hock and Tinanoff (1979)

demonstrated in animal studies that the topical application of stannous fluoride had beneficial effects on both plaque reduction and the level of gingivitis.

In a clinical study of 10 male patients with advanced periodontitis, Mazza, Newman, and Sims (1981) used three periodontally diseased sites and applied either 1.64% SnF₂, 0.4% SnF₂, or sterile saline by subgingival irrigation while a healthy site received sterile saline only. The investigators measured both clinical plaque indices and bacterial sampling. The results indicated that the 1.64% SnF₂ caused a dramatic and sustained decrease in subgingival motile bacteria and spirochetes following irrigation. Irrigation with 0.4% SnF₂ on the diseased sites demonstrated a similar pattern of bacterial reduction; however, without total bacterial elimination the plaque level returned to baseline. In the diseased sites receiving sterile saline irrigation, bacteria decreased in correspondence to the irrigation action, with a rapid return to original bacteria levels. The healthy control sites were unchanged. Reduction in bleeding scores indices showed a positive correlation ($r = 0.835$) with the reduction in motile bacteria and spirochetes with the greatest decreases at the 1.64% SnF₂ and the least at the saline sites. The authors concluded that the magnitude and duration of the beneficial effects were related to the concentration of fluoride ion in the disease sites.

Yoon and Berry (1979) investigated whether topical fluorides have an *in vivo* effect on actinomyces-like gram-positive rods present in crevicular and marginal plaque. They also compared the differences in effectiveness between commercially available fluoride complexes:

0.4% stannous fluoride, 1.23% acidulated phosphate fluoride and 0.5% sodium fluoride. They selected 11 students for the study because of the presence of actinomyces-like organisms in their crevicular and marginal plaque. The study consisted of two sessions, one serving as control and the other as the treatment period. The treatment and control periods lasted for 3 weeks with a 2-week interim between sessions. The subjects were assigned to a NaF, APF, or SnF₂ group and served as their controls. The subject used a fluoride-free dentrifice and supplemented their usual hygiene practices with the application of the fluoride in the morning and evening. They were instructed to follow the manufacturer's directions for the fluoride they were assigned: NaF solution was applied with rinsing, and the SnF₂ and APF gels were applied with brushing. The subjects were to make no other changes in daily oral hygiene practices. Investigators took plaque indices, gingival indices (Löe, 1967), and Hygiene Analysis Index scores at each examination. They also took a morphologic sampling at the beginning and end of both sessions. Results revealed a decrease in the percentage of actinomyces-like organisms in all but two of the subjects. The investigators found no significant differences between the types of commercially prepared fluorides used in this unsupervised, home use program of rinsing or brushing. Using the same fluoride in a later in vitro study, Yoon and Berry (1979) demonstrated the fluorides suppressed the growth of actinomyces viscosus in vitro and found differences in effectiveness between fluoride compounds, with SnF₂ more effective in inhibition of cellular growth than APF or NaF. In this same study, Yoon and Berry supported the use of commercially

prepared fluorides in controlling the bacteria associated with periodontal disease. "Fluoride home use programs are easily instituted and more economically feasible than frequent professional applications" (p. 1824). In a 1980 study, Yoon and Newman demonstrated that stannous fluoride was also more effective than acidulated phosphate or sodium fluoride as an antibacterial agent. The researchers showed that SnF_2 was effective at lowest fluoride concentration and in destroying the gram-positive periodontopathogens, *bacterioides melaninogenicus* as *melaninogenicus* and *intermedius* and *bacterioides asachharolyticus*.

Using fluoride toothpastes and plaque inhibitors for adults, Lobene and Soparkar (1974) showed a 20% reduction in plaque accumulation and a 37% decrease in gingivitis scores. Brayer, Antal, Sela, Gedalia and Stabholtz (1979) also demonstrated a reduction in oral hygiene index scores when brushing with a fluoride dentrifice. In an attempt to eliminate brushing technique as a variable when comparing toothpastes with different compounds, Svatum (1978) evaluated fluoride compounds applied by stents for 2 minutes per day for 4 days. No brushing was allowed. He found that plaque was inhibited by 0.4% SnF_2 , 0.4% SnF_2 plus 1% stannous pyrophosphate and 0.8% chlorhexidine digluconate.

Fluoride contained in mouthrinses has also been an effective antiplaque agent. Svanberg and Westergren (1983) demonstrated that mouthrinsing with SnF_2 reduced streptococcus mutans in plaque and saliva and the proportions of streptococcus sanguis in plaque. The effect was of short duration. This in vivo study also showed that topical SnF_2 applications reduced the streptococcus mutans in plaque

and saliva but did not reduce the proportions of streptococcus sanguis in plaque. The effect was more prolonged: 4 weeks after treatment the streptococcus mutans remained significantly reduced in the interproximal plaque and the salivary levels of the organism had not fully returned to pretreatment levels. Yankell, Paskow and Shern (1978) showed that SnF₂ mouthrinses dramatically reduced the number of plaque organisms in 45 adults who rinsed twice daily for 4 days. The investigators used 250 ppm and 1,000 ppm fluoride mouthrinses with a demonstrated bacterial reduction of 80% at 250 ppm and 99% at 1,000 ppm SnF₂. These findings were significantly different from the findings with placebo rinses. In another study Yankell, Stroller, Tawil, Green and Shern (1978) researched the effects of amine, sodium, and stannous fluorides on plaque levels of 48 dental students using the mouthrinses twice per day with no other cleaning techniques. Amine fluoride showed a 30% reduction in viable aerobic and anaerobic organisms from sampled plaques. In comparing plaque scores, the indices were lower for the groups using SnF₂ than the control groups. While clinical indicators of gingivitis did not differ between groups, gingival fluid was reduced up to 40% by 1,000 ppm SnF₂ rinses.

Andres, Schaeffer and Windeler (1974) compared sodium fluoride and stannous fluoride to determine both the duration of antimicrobial effect and the relative contribution of fluoride and tin. The mouthrinses used were 0.5% SnF₂, 0.2% NAF and normal saline. Seven adults rinsed with different mouthrinses for 2 days, with 5 days in between to assure microbial recovery. Investigators collected saliva and evaluated microbial composition at 1, 3, and 5 hours after rinsing.

Immediately after rinsing, SnF₂ showed a 99% reduction of anaerobic organisms. The sustained reduction after 5 hours was 93%. Other mouthrinses showed no significant effect. Other studies have demonstrated a 74 to 99% reduction of microorganisms in bacterial plaque from subjects using diluted SnF₂ mouthrinses twice a day (Gross & Tinanoff, 1977; Yankell, Paskow, & Shern, 1978).

In the studies presented, fluoride had no detrimental effects on gingival tissues. Muhler (1957) demonstrated that when high concentrations of SnF₂ were applied topically a mild blanching of the gingiva occurred in 5% of the subjects. He stated that this was always related to inflamed tissue and that the sloughing of this necrotic tissue had no detrimental effect. Mazza, Newman, and Sims (1981) further reported that when SnF₂ was injected in periodontal pockets, bleeding from the diseased sites was reduced during the course of experimentation. The authors further substantiated that the reduction in bleeding was clearly unrelated to improvements in oral hygiene status or prophylaxis of the teeth.

Investigators have conducted rigorous trials in establishing the safety of stannous fluoride. The only reported side effect in its many years of use is staining of the teeth. This stain is less tenacious than that attributed to chlorhexidine and is usually removed easily by a professional prophylaxis (Svatum, Gjermo, Eriksen, & Rolla, 1977). The other consideration in using SnF₂ is an objectionable taste; however, flavored commercial gels have successfully reduced the astringent to metallic taste. While SnF₂ has poor stability as an aqueous solution, the addition of a glycerine base in commercial products gives fluoride gels and mouthrinses an indefinite shelf life (Shannon, 1969; Tinanoff & Weeks, 1979).

In summary, fluoride is a proven safe and readily available drug that is effective as an antibacterial agent on the organisms that predominate in periodontal pockets. Both fluoride gels and mouthrinses have reduced plaque bacteria and possibly the amount of plaque in adults. The effects of fluoride are notable when the drug is directly applied to the diseased site. Fluoridated drinking water has an effect on the prevention of dental caries, but little or no beneficial effect on periodontal disease.

Stannous fluoride appears to be the most effective type of fluoride used in controlling the specific bacteria associated with periodontal disease. The 0.4% stannous fluoride gel has evolved as a step in the development of a preventive program for home use. This gel is particularly appropriate since maximum benefit is directly related to frequency of application. Improvements in taste should have a positive correlation with frequency of use. Stannous fluoride can be stored indefinitely and is readily adaptable to home-care treatment. It can be easily self-administered and can yield effective results even when oral hygiene instructions have not been given.

The Value of Qualitative Research

In qualitative research, eliminating the researcher's own effects on subjects is difficult. Researchers also cannot obtain an exact correspondence between what they wish to study, for example the natural milieu, and what is actually studied, the milieu with a researcher present (Bogdan & Biklen, 1982). Since qualitative researchers are interested in how people act in their own environments, the researcher needs to interact with the subjects in a natural,

nonthreatening way, must reduce control and an obtrusive approach in order to avoid studying the effects of his own methods rather than the subjects. If people are treated only as research subjects, they will respond by reacting as research subjects (Bogdan & Biklen, 1982).

The case study approach is one method of qualitative research. Scott (1965) described the case study as a detailed examination of one setting, or one single subject, on one single depository of documents, or one particular event. He further stated that while case studies vary in complexity, they are more valuable when conducted in one site. According to Babbie (1973), the use of different methods focused on the same topic is usually the best social research format. The case study method can comprise a comprehensive analysis of the status of a group of individuals living within the same environmental setting. Field methods can supplement an experimental design in several ways: serving as a background to a survey in providing familiarity with the setting; developing rapport with those being surveyed; and performing exploratory work necessary for pretesting a survey (Ianni & Orr, 1979). Observation in the field can add to the theoretical structure of experimental analysis and can aid in validating results. Using field methods can clarify ambiguity and illustrate findings.

Foreman (1948) pointed to the following four type situations where the utility of case studies may be particularly evident.

1. Where the immediate problem is to open a field for research.
2. Where the problem demands further conceptualization of factors or functions affecting a given activity.
3. Where the problem demands emphasis on the pattern of interpretation given by subjects or functionaries.

4. Where the problem is to determine the particular pattern of factors significant in a given case. (p. 204)

While all of these situations are relevant today, type one would be the most obvious. In the second situation, case studies can isolate additional factors for predictive devices, or be used to trace relationships of given factors when treated operationally as independent, but in actuality complexly interfactored. In the third situation, data may approach directly the subject's own integration of complex factors and thus permit interpretation. In situation four, flexibility in case techniques can afford economy in research by allowing concentration on a detailed, free-flowing analysis of a set number of factors believed to be significant in defining and tracing the operation of a particular measure.

Reichardt and Cook (1979) outlined the obstacles of combining qualitative and quantitative methods: expense, time, adequate training in both methods, and faddism and the adherence to the dialectical form of the debate. These authors further stated that these obstacles should not force researchers to choose one method over the other but rather fit the methods to the demands of the research problem in the best possible manner. This approach is supported by Campbell (1975), who stated that neither method is infallible and that in cases where quantitative evaluations are used, qualitative measures can not only offer additional information but can also serve as a checking method.

Analysis in a case study may be either statistical or qualitative (Rosenblatt, 1981). The investigators can analyze some of the goals of qualitative research by descriptive statistics, to report in narrative form a comprehensive log of an individual or group of

individuals, and to gather information that cannot be generated by quantitative methods alone. In summarizing, Filstead (1979) stated

Evaluation research, and the behavioral sciences in general, suffer from a preoccupation with quantification and statistics. A better balance needs to be struck between the everyday grounding of meanings in social action and the generalizability of these meanings to a wider context. This is the challenge offered by qualitative and quantitative methods. (pp. 46-47)

Summary of Literature Review

Alcohol has long been one of the most abused drugs in this country. To drink alcoholic beverages is socially acceptable, yet 10% of our drinking population are alcoholics. Alcoholics come from all walks of life. Since alcohol is no respecter of persons, anyone can be susceptible to its devastating effects.

Alcoholism ranks with cancer and heart disease as a major health problem, yet we do little to arrest or prevent this disease. Alcoholism affects all dimensions of health. Since it so adversely affects the psychological makeup of the individual, evidence of low self-esteem and self-concept are prominent in most alcoholics. Additionally, the physical effects of alcoholism are evident in the oral cavity as well as the head and neck regions of afflicted individuals. Heavy drinking and the use of tobacco products are concomitantly associated; therefore, the alcoholic is at a greater risk of developing oral cancer as well as other dental diseases. One of the problems associated with chronic alcoholism is long-term neglect of the dentition. The use of both alcohol and tobacco are positively correlated with poor oral hygiene habits. Florida law mandates that alcoholism treatment include rehabilitation services. Maximizing social and self-help skills is

part of the rehabilitation services provided by publicly funded treatment facilities. Personal care, nutritious meals, and educational, motivational therapy are also integral parts of the treatment regime.

Self-esteem and self-perception are vital components in alcoholism recovery as well as of the learning process. Techniques adopted from the affective educational approach can be effectively applied in motivating alcoholics not only in the recovery process but also in the procedures for improving oral health. This is accomplished by promoting positive self-esteem.

Health professionals must be cognizant of the necessity of applying the components of affective education in working with adults. They must communicate both empathy and understanding to the alcoholic. They must demonstrate active listening skills and provide a safe, nonthreatening, secure, and trusting atmosphere for the alcoholic individual. These same innate abilities and learned skills are also necessary for the dental health educator in promoting behavioral change in oral hygiene habits. Using these components could produce a cyclic effect whereby the alcoholic's oral hygiene status improves as the individual progresses through the recovery process.

Investigators have studied dental health education programs in a variety of settings. Yet, neither the dental literature nor the literature on alcoholism addresses a dental education program in an alcoholism treatment facility.

Dental researchers and dental clinicians advocate the removal of bacterial plaque in order to reduce or prevent gingivitis, periodontal disease, and dental caries. While fluoride has effectively reduced

carious lesions, many researchers today also attest to its effectiveness in reducing the plaque that causes gingivitis and periodontal disease. One of the basic tenets of a dental instruction program is motivation. Patient motivation can bring about behavioral change in dental health habits. The dental patient must have the necessary tools for proper oral hygiene. In order to provide the appropriate oral physiotherapy aids and a relevant program of instruction, the clinician must first assess individual needs and ability.

Collecting qualitative data can contribute to a comprehensive analysis of the status of a group of individuals living within the same environment. The case study approach is one means of allowing the researcher to develop a better rapport with the individuals being studied. This in turn can allow the researchers to gain trust and confidence as well as establish the personal credibility necessary for motivating alcoholics both in a dental health education program and in their recovery process. As a qualitative method, the case study can be the means by which the researcher can gather information not available through quantitative methods alone. The combination of the qualitative and quantitative methods of research can provide the necessary balance between the everyday grounding of meanings in social behavior and the generalizability of these meanings to a broader environment.

CHAPTER III

METHODOLOGY

Introduction

The basic questions I investigated in this study are whether any type of dental health instruction, or self-administered fluoride, or a combination of the two, can bring about change over a short period of time in the oral health of non-alcoholics and alcoholics in a residential treatment facility. Three purposes of the research were to determine if the oral health status of alcoholics and non-alcoholics differs, to evaluate the success of combined individual and group dental health instructional program in reducing plaque levels and improving gingival status, and to test the effectiveness of self-administered stannous fluoride gel as an adjunctive antiplaque agent. If significant results are obtained on either or both of these factors, this program could serve as a model that alcoholism treatment facilities can use in providing a cost-effective component to add to the holistic concept of alcoholism treatment.

This chapter contains the following sections: research methodology, instrumentation, data collection procedures, research design, and data analysis.

Research Methodology

This study includes qualitative and quantitative methods in the research design. The specific questions investigated are as follows:

1. Will staff have a higher level of dental health prior to treatment than residents have?
2. After 3 weeks will staff who receive fluoride with dental hygiene instruction have improved oral health?
3. After 3 weeks will staff who receive no fluoride with dental hygiene instruction have improved oral health?
4. After 3 weeks will residents who receive fluoride with dental hygiene instruction have improved oral health?
5. After 3 weeks will residents who receive no fluoride with dental hygiene instruction have improved oral health?
6. After 3 weeks will residents who receive fluoride with no dental hygiene instruction have improved oral health?
7. After 3 weeks will residents who receive no fluoride and no dental hygiene instruction have improved oral hygiene?

In order to answer the research questions, I employed a modified nonequivalent control group design (Campbell & Stanley, 1966; Roos, 1973) and a completely randomized design (Kirk, 1968) in the naturalistic setting of an alcoholism treatment facility.

Ianni and Orr (1979) suggested a variety of techniques that can be used in the qualitative approach. The qualitative techniques in this study included a review of client psychosocial records, a comprehensive medical-dental history, and active participation with program participants through observation and interview surveys. The

qualitative data describe the treatment population both narratively and statistically.

This study included two treatment variables. The first variable was 0.4% stannous fluoride Omni gel. I used a double-blind approach (Craig & Metze, 1979) in introducing the gel by having another individual code and randomly assign the two-ounce containers of fluoride gel and placebo gel to members of one experimental group and two control groups. Members of the experimental group and the staff control group received specific instructions on how to use the fluoride gel as an antiplaque agent (P. H. Keyes, personal communication, November 2, 1983). Resident members of the control group were merely told that they were to follow the manufacturer's written directions on the gel container. The second treatment variable was dental health instruction on the use of oral physiotherapy aids assigned in accordance with individual ability and need. I referred to instruction by type, that is, combined individual and group instruction or no instruction. I introduced this treatment variable to the experimental group and the staff control group.

Since some members of the resident experimental and control groups shared rooms during the time of the study, I instructed all members both orally and in writing not to share the gel. While I encouraged members of the resident and staff experimental groups to motivate and assist each other in the use of the oral physiotherapy aids, I asked that they not share any instructional information with members of the control group until completion of the study.

Instrumentation

According to L   (1967), the use of an index is determined by the purpose for which it is to be used and the kind of information it is to generate. "Indices designed for use in epidemiologic surveys are not appropriate in clinical research studies planned for testing the effects of a prevention or treatment agent" (Wilkins, 1983, p. 293). Wilkins (1983) defined a clinical trial as a trial ". . . planned for the determination of the effect of an agent or procedure on the progression, control, or prevention of a disease. The investigator would conduct the trial by comparing an experimental group with a control group which is similar to the experimental group in every way except for the variable being studied" (p. 293). Wilkins suggested the Plaque Index designed by Silness and L   (1964) as an example of an index used for clinical trials.

Since the quantitative component of this study fits the definition of a clinical trial, I used the L   and Silness (1963) Gingival Index (GI) and the Silness and L   (1964) Plaque Index (PI). A brief history, a description of the instruments, and information on examiner reliability follow.

History

L   and Silness (1963) originally used the Gingival Index in a study on the prevalence and severity of periodontal disease in pregnancy to assess the clinical characteristics of the different grades of gingival inflammation. Silness and L   (1964) designed the Plaque Index and used it in a follow-up study to determine the

correlation between oral hygiene and periodontal condition during pregnancy.

Other investigators have worked with these indices until the two now are the most widely used measures of plaque weight for oral hygiene status and for gingival health status (Bastiaan & Waite, 1978; Fischman, 1979; Laster, 1967; Løe & Holm-Pedersen, 1965; Løe, Theilade, & Jensen, 1965; Silness & Løe, 1966; Mandel, 1974; Theilade, Wright, Jensen, & Løe, 1966). In supporting the validity and reliability of the Plaque Index, Lang, Ostergaard and Løe (1972) found a nearly linear correlation between the Plaque Index as used on the facial surfaces of the anterior teeth and the total area of plaque when measured photographically with fluorescent light. Loesche and Green (1972) reported further validity and reliability in a study which demonstrated that unstained plaque scores correlated much higher than stained scores with gingivitis and wet and dry plaque weight.

Gingival Index

Løe and Silness (1963) reported that the purpose of creating the Gingival Index was to propose a system for the assessment of the gingival condition. The intent of this system was to differentiate the quality of the gingiva or severity of the lesions and the location or quantity as related to the mesial, distal, lingual and facial surfaces that make up the total circumference of the marginal gingiva.

The criteria for the GI are limited to qualitative changes in the soft tissue of the gingiva. The index does not take into account periodontal pocket depth or any other quantitative changes of the periodontium.

Frequently investigators use the Silness and L  e Gingival Index and scores on a plaque index to determine the clinical efficacy of antimicrobial agents (Fischman, 1979).

Criteria for the Gingival Index System

The criteria for the Gingival Index system, according to L  e (1967), are as follows:¹

- 0 = Normal gingiva
- 1 = Mild inflammation--slight changes in color, slight oedema. No bleeding on probing.
- 2 = Moderate inflammation--redness, oedema and glazing. Bleeding on probing.
- 3 = Severe inflammation--marked redness and oedema. Ulceration. Tendency to spontaneous bleeding.

Each of the four gingival areas of the tooth is given a score from 0 to 3; this is the GI for the area. The scores from the four areas of the tooth may be added and divided by four to give the GI for the tooth. The scores for individual teeth (incisors, premolars and molars) may be grouped to designate the GI for the group of teeth. Finally, by adding the indices for the teeth and dividing the total number of teeth examined, the GI for the individual is obtained. The index for the subject is thus an average score for the areas examined.

GI = 0 is given to the gingiva the color of which is pale pink to pink. The surface after drying is matt. The degree of stippling may vary. The gingival margin may be located on the enamel . . . or at various levels apical to the cemento-enamel junction. Although the margin should be thin, the buccal and lingual gingiva may present a rounded termination against the tooth, thereby forming the entrance or orifice of the gingival crevice. The form of the interdental gingiva depends on the shape and size of the interdental areas. The tip of the papillia should be the most incisally or occlusally located part of the gingiva. On palpation with a blunt instrument (pocket probe) the gingiva should be firm.

¹"The Gingival Index and the Plaque Index and the Retention Index" by H. L  e, 1967, Journal of Periodontology, 38, pp. 38/610, 41/613, Copyright 1967 by the Journal of Periodontology. Reprinted by permission.

GI = 1 is the score given when the gingiva is subject to mild inflammation. The gingival margin is slightly more reddish or bluish-reddish than normal and there is slight oedema of the margin. . . . A colorless gingival exudate may be observed or collected at the entrance of the crevice. Bleeding is not provoked when a blunt instrument (pocket probe) is run along the soft tissue wall of the entrance of the gingival crevice.

GI = 2 This is the score for a moderately inflamed gingiva. . . . The gingiva is red or reddish-blue and glazy. There is enlargement of the margin due to oedema. Bleeding is provoked when a blunt instrument (pocket probe) is run along the soft tissue wall of the entrance to the gingival crevice.

GI = 3 is the score for severe inflammation. The gingiva is marked or reddish-blue and enlarged. . . . Tendency to spontaneous bleeding. Ulceration. (pp. 36/610, 41/613).

The various tendencies of the gingiva to bleeding provide the decisive criteria between the Gingival Index scores. GI = 0 is the score given when the gingival tissue is normal. GI = 1 represents a slight change from normal, but no bleeding occurs upon probing. When bleeding is initiated upon probing, the GI = 2. Spontaneous bleeding represents the stage for GI = 3.

Löe (1967) stated that the Gingival Index could be used to assess all surfaces of all teeth on prespecified surfaces of all or selected teeth (modified version) with no difference in GI results. Since the literature showed a prevalence of missing teeth in alcoholics, I assessed all surfaces of all teeth constituting the dentition of each individual examined.

I adapted the procedures suggested by Wilkins (1983) to examine patients in a naturalistic setting. These procedures are as follows:

Gingival areas examined: mesial, distal, facial, and lingual surfaces of each tooth.

Materials used: adequate light, aid syringe to dry teeth and gingiva, mouth mirror, and Michigan periodontal probe.

Process: Use adequate light.
 Dry the teeth and gingiva.
 Use the mouth mirrors for retraction and visibility.
 Use the probe to determine the degree of firmness.
 Use the probe by inserting it in the gingival sulcus to evaluate bleeding.
 Once inserted a few millimeters, the probe is moved along the soft tissue pocket wall with light pressure in a circumferential direction.

GI scoring for the individual:
 Total the scores and divide by the number of teeth examined.

$$\text{Gingival Index} = \frac{\text{Total scores}}{\text{Number of surfaces}}$$

Score evaluation: The nominal scale index ranges from 0-3

<u>Rating</u>	<u>Scores</u>
Excellent	0
Good	0.1-0.9
Fair	1.0-1.9
Poor	2.0-3.0

Plaque Index

Löe (1967) stated ". . . the ideal set of index systems is one which allows the assessment of the severity of the different factors in the same area as the gingival condition is recorded" (p. 613).

Investigators introduced the Plaque Index (PII) to match the Gingival Index completely (Silness & Löe, 1964). The Plaque Index clearly distinguishes between the severity and location of the soft debris accumulation.

Plaque Index scores reflect only differences in the thickness of the soft deposit in the gingival areas of tooth surfaces with no attention to plaque that has extended to the middle or incisal thirds. Plaque can be assessed on top of calculus deposits, crowns, or other restorations.

Criteria for the Plaque Index System

The criteria for the Plaque Index System, according to L  e (1967), are as follows:²

- 0 = No plaque in the gingival area.
- 1 = A film of plaque adhering to the free gingival margin and adjacent area of the tooth. The plaque may only be recognized by running a probe across the tooth surface.
- 2 = Moderate accumulation of soft deposits within the gingival pocket, on the gingival margin and/or adjacent tooth surface, which can be seen by the naked eye.
- 3 = Abundance of soft matter within the gingival pocket and or on the gingival margin and adjacent tooth surface.

Each of the four gingival areas of the tooth is given a score from 0-3; this is the PII for the area. The scores from the four areas of the tooth may be added and divided by four to give the PII for the tooth. The scores for individual teeth (incisors, premolars and molars) may be grouped to designate the PII for the groups of teeth. Finally, by adding the indices for the teeth and dividing by the number of teeth examined, the PII for the individual is obtained.

PII = 0 This score is given when the gingival area of the tooth surface is literally free of plaque. The surface is tested by running a pointed probe across the tooth surface at the entrance of the gingival crevice after the tooth has been properly dried, and if no soft matter adheres to the point of the probe, the area is considered clean.

²"The Gingival Index, the Plaque Index and the Retention Index" by H. L  e, 1967, Journal of Periodontology, 38, pp. 41 613, 42 614.

- PII = 1 This score is given when no plaque can be observed in situ by the unaided eye, but when the plaque is made visible on the point of the probe after this has been moved across the tooth surface at the entrance of the gingival crevice. Disclosing solution has not been used in our investigations, but may be useful for the recognition of this film of plaque.
- PII = 2 This score is given when the gingival area is covered with a thin to moderately thick layer of plaque. The deposit is visible to the naked eye.
- PII = 3 Heavy accumulation of soft matter, the thickness of which fills out the niche produced by the gingival margin and the tooth surface. The interdental area is stuffed with soft debris. (pp. 41/613, 42/614)

The weight of plaque deposits provides the decisive criteria between the Plaque Index scores. PII = 0 is the score for literally no plaque on the gingival surface of the tooth. When the gingival area is covered with a thin layer of plaque which is detectable only by running a probe across the tooth surface, a PII = 1 is the score; PII = 2 represents the situation when the deposit is clear to the naked eye. PII = 3 is the score for a heavy (1-2mm thick accumulation of soft deposit).

Löe (1967) suggested using the Plaque Index to assess all surfaces of all teeth or prespecified surfaces of all or selected teeth (modified version) with no difference in PII results. In order to provide consistent measures with the Gingival Index, I assessed all surfaces of all teeth constituting the dentition of each individual.

I used an examination procedure adapted from Wilkins (1983) to examine patients in the treatment facility. These procedures are as follows:

Gingival areas examined: mesial, distal, facial, and lingual surfaces of each tooth.

Materials used: adequate light, aid syringe to dry teeth and gingiva, mouth mirror and the Shepherd's Hook explorer.

Process: Use adequate light.

Dry the tooth and visually examine for scores of 2 or 3. When no plaque is visible, the explorer is passed across the tooth surface in the cervical third and near the entrance to the gingival sulcus. A score of 0 is given if no plaque adheres to the explorer tip. When plaque adheres, a score of 1 is assigned. Plaque that is on the surface of calculus deposits or dental restorations on the cervical thirds is evaluated and included.

PII scoring for the individual:

Total the scores and divide by the number of teeth examined.

$$\text{Plaque Index} = \frac{\text{Total score}}{\text{Number of surfaces}}$$

Score evaluation:

The nominal scale index ranges from 0-3.

<u>Rating</u>	<u>Scores</u>
Excellent	0
Good	0.1-0.9
Fair	1.0-1.9
Poor	2.0-3.0

Löe (1967) stated that when using both the GI and PII, assessment of the PII should always precede that of the GI.

Examiner Reliability

A technically trained examiner who is most familiar with the situation is usually the best qualified to make clinical ratings (Uhlenhuth, Lipman, Chassan, Hines, & McHair, 1971). Researchers

recommend having a recorder assist the examiner and having the same examiner perform all of the clinical assessments (Löe, 1967; Löe & Silness, 1963; Mandel, 1974; Ship, Cohen, & Laster, 1967; Silness & Löe, 1964).

For successful use of dental indices with maximum intra- and inter-examiner variation, standardization of examination procedures, clearly defined descriptions of index criteria and adequately trained examiners are necessary (Mandel, 1974). According to Greene (1967), "The intra-examiner error of an experienced examiner in short-term studies should be random and should not cause difficulty" (p. 635). The inter-examiner error will produce no serious problems if examiners have standardized their use of the index. Both Greene (1967) and Mandel (1974) suggest the use of percentages or correlations in determining intra- and inter-examiner reliability.

Mandel (1974) suggested that examiner agreement of 85% to 95% appeared to be reasonable with the use of various dental indices. Based on assessment of intra-examiner variation studies, Smith, Suomi, and Greene (1970) stated that an agreement level of 85% between duplicate measurements appeared to offer a realistic percent of agreement. Bastiaan and Waite (1978) established intra-examiner reliability at 86% for the Löe and Silness Gingival Index and the Silness and Löe Plaque Index. Greene (1967) reported that in past studies the percent of agreement between examiners was generally less than intra-examiner agreement.

Overall and Klett (1972) suggested that for reliability in clinical studies, investigators use product-moment correlations

between ratings made by independent observers most frequently in estimating reliability of clinical ratings.

Intra-Examiner Reliability

As a licensed dental hygienist with more than 15 years of clinical practice, I have had experience with most of the indices used to assess oral health. I have employed the standard examination procedures of L  e (1967) and Wilkins (1983), primarily because I was most familiar with them. I consistently used the Michigan periodontal probe and the Shepherd's Hook explorer to examine the mouth of each individual. I reviewed and practiced the assessment criteria established for the Gingival and Plaque Indices prior to program implementation. Since I was unable to secure another person to serve as a recorder, I needed approximately 8-10 minutes to perform the complete dental examination.

In order to establish intra-examiner reliability, I conducted a series of examination sessions. I examined and reexamined five patients in the same half day. I scored the amount of plaque and degree of gingival status separately according to the criteria established by L  e (1967). To test for intra-examiner reliability, I used the Pearson product-moment correlation coefficient where

$$r = \sqrt{\frac{N \sum xy - (\sum x)(\sum y)}{[\sum x^2 - (\sum x)^2][\sum y^2 - (\sum y)^2]}}$$

A correlation coefficient of +.98 with an $r^2 = 96\%$ was established for the Plaque Index. The Gingival Index yielded a correlation coefficient of +.97 with an $r^2 = 94\%$. These correlation coefficients

indicate a high rate of intra-examiner reliability on both the Gingival and the Plaque Indices.

Inter-Examiner Reliability

In an effort to determine inter-examiner reliability, I obtained the assistance of another licensed dental hygienist, also with 15 years of clinical experience. Prior to the clinical test, I met with this hygienist to review examination procedures and the criteria for both indices. In her current clinical practice she is using a similar assessment instrument and, therefore, was familiar with the criteria for both the Gingival and the Plaque Indices. Following review and a trial practice, this hygienist evaluated five randomly selected patients. Immediately following her examination, I examined these same patients in another section of the dental clinic.

To test for inter-examiner reliability, I again used the Pearson product-moment correlation coefficient. A correlation coefficient of $+0.95$ with $r^2 = 90\%$ was determined for the Gingival Index. The Plaque Index yielded a correlation coefficient of $+0.98$ with a $r^2 = 96\%$. These coefficients indicate a high rate of inter-examiner reliability on both the Gingival and the Plaque Indices.

Sample Population

Clients in the alcoholism treatment facility are classified in one of two categories--minimal residential or chronic alcoholic and residential or acute alcoholic. To be classified as minimal residential, the client may meet any or all of the following criteria: multiple arrests, numerous alcoholism treatment admissions,

extensive physical problems, lack of a support system, and minimal or no job skills. These individuals usually require up to 8 weeks of treatment. The criteria for classification of residential is as follows: one or two previous admissions for alcoholism treatment, minimal physical problems, some type of support system, and usable job skills. These individuals usually require up to 6 weeks of treatment.

Admission and discharge from the treatment facility takes place weekly with the former occurring on Monday and the latter on Friday. With this system, neither random selection nor random assignment of participants was possible. In order not to interfere with the treatment regime, and also to meet the executive director's request, participation in the program was voluntary.

This treatment facility has a 50-bed capacity. At the time I began this study 43 people--11 women and 32 men--were in residence. Due to scheduling constraints for use of the mobile dental clinic, the first set of residents became the experimental group. The group of 29 residents included 23 males and 6 females. One male participant was edentulous and ineligible for the study; however, I completed a medical-dental history, conducted an oral cancer examination, and instructed him on the proper care of his dentures. Prior to program completion, two male participants left the treatment facility against medical advice (popularly referred to as "AMA"). Twenty-six participants completed the entire program as the experimental group. Out of the 26, 16 were classified as minimal residential and 10 as residential.

Participation in the program was open to members of the staff of the treatment facility in an endeavor to gain their support and to

have them act as motivational role models for the residents. Also using staff as representative of the general population provided baseline data for comparison of both entering status and change in oral health status following treatment. A total of 15 staff members, 4 of whom were recovering alcoholics, agreed to participate in the study. One male counselor, a recovering alcoholic, was transferred to another treatment component and so was unable to complete the program. Of the total staff control group who completed the program ($N = 14$), seven were males and seven females. This group represented a cross-section of the employed population since it included representatives of the administrative, counseling, and maintenance staff.

Members of the second control group were also volunteers. Of the 48 residents who were in treatment during this phase of the program, 29 agreed to participate in the study. This was immediately following the experimental phase of the program so this was an exceptional response rate. Sixteen of the residents still in treatment had just completed the dental program. This means that only three people did not volunteer to participate in the control group. The orientation counselor, who was promoting the program, reported that two of the three residents wore dentures and did not want to participate. The third individual originally agreed to be a part of the study; however, he consistently missed his appointments and, when confronted by the counselor, stated that he had changed his mind because he had had a recent dental examination. Of the 29 volunteer residents, 22 were males and 7 were females. Two male participants were edentulous and ineligible for the study; however, I did complete the medical-dental

history, perform an oral cancer examination, and instruct both on the proper care of their dentures. Prior to end of the control phase of the program three males and one female left the treatment facility AMA. Twenty-three participants completed the entire program. Out of the 23, 11 were classified as minimal residential and 12 as residential.

Data Collection Procedures

During a staff meeting the week prior to the beginning of the research study, the coordinating supervisor of the treatment facility announced the project and explained the purpose of the study to the counselors. He explained that the program was available to all residents and employees and that participation was voluntary. He asked the counselors to inform the residents in their individual groups that I would be at the treatment center on March 4 to begin the program. He also asked the counselors to encourage residents to participate in the program.

On the first day of the program, I stationed myself in one of the residential rooms to be used as a temporary office for the study. As each resident entered the room I gave a brief introduction ("Hello, my name is Sharon Weaver. I am a doctoral student engaged in a dental research project. The details are included on the informed consent form I am going to ask you to sign." I gave each resident a copy of the consent form (Appendix A) and asked the client to read along with me. My reason for doing this was to avoid embarrassment to those residents who were unable to read. After I read the form I asked if

the person had any questions. I noted all questions and my responses on the consent form. I then asked if the resident wanted to participate in the study. I asked those who answered in the affirmative to sign the consent form. At the request of the treatment program evaluator, I asked those who answered in the negative to write and sign a statement that they did not wish to participate.

After each participant signed the consent form, I completed the medical-dental history by reading the questions aloud and filling in the form with the resident's responses (see Appendix B for the medical-dental form). I then told the resident that I would do the dental assessment in the dental clinic that would be at the facility the next day. Prior to the departure of each participant, I again solicited questions. I took approximately 30 minutes with each resident and completed health histories on 18 individuals.

During the first four days of the clinical study, I assessed and completed dental charts on residents and staff (see Appendix C for the dental chart). The dental examination included an extraoral and intraoral cancer examination, assessment and scoring of gingival and plaque status, and color coding of carious lesions, calculus deposits, stain, and lacerations (see Appendix D for oral cancer procedure). I explained each procedure to the resident and referred to any abnormality as a suspicious area. I requested participants who had suspicious areas requiring immediate attention to see the staff nurse for proper referral.

I conducted the dental examinations on a mobile dental unit provided by a local agency. Volunteers from the agency came each

day to assist me and to have the residents complete the consent form required to receive services on the dental unit (see Appendix E). A graduate assistant from a local university also provided assistance by locating the study participants within the residential area for their examinations. To expedite the process, she also assisted new resident members in completing the medical-dental forms. Staff members completed their health histories prior to their dental examinations.

The instructional part of the program took place in an upstairs conference room. In an effort to avoid interference with the therapy regime, I worked with the study participants four days a week from 11:30 a.m. to 2:30 p.m., which was their scheduled free time (see Appendix F for the treatment schedule). During other times of the day I completed examinations on incoming residents and both examinations and provided instruction for staff members. I also used this time to review the psychosocial records for residents in the experimental group (see Appendix G for the psychosocial form).

Residents received instruction both individually and in groups. On the first individual visit, I explained and demonstrated how to use the gel (see Appendix H for instructions). I also did demonstration/return demonstration on oral hygiene techniques and assigned oral physiotherapy aids according to individual ability and need. I used all Butler products, including Butler #411 and Sub-G soft bristle toothbrushes, red cote disclosing tablets, rubber tip stimulator, proxybrush/perio-aid, and unwaxed dental floss. I recommended varied brushing and interdental cleaning techniques (see Appendix I for instruction methods).

The reason for group activities was to facilitate motivation by building group cohesion and support since group support follows the philosophy of alcoholism therapy. In group sessions I used a variety of instructional methodologies. These included visual aids, oral presentations, films, simulation exercises, group discussions, and demonstration/return demonstration. I also used the Butler Dental Health Education Teaching Aid and gave the residents dental education pamphlets (see Appendix I).

I posted the schedule of activities and appointment assignments daily and gave each resident an appointment note (see Appendix J for examples). I also maintained an open door policy to answer questions and to provide assistance in oral hygiene techniques.

After giving 3 weeks of instruction, I spent 9 hours completing final clinical assessments. After recording scores on the Gingival and Plaque Indices, I asked each resident to complete a program evaluation form (Appendix K), but I did not use these data in the quantitative analysis. Based on their needs and interests, I held a final instruction session with each resident. During this session I gave each participant a dental health resource card for further dental treatment (Appendix L). I also obtained participants' addresses for notification regarding the fluoride. I awarded each resident a certificate of recognition (Appendix M).

During the fifth and sixth weeks, I conducted post assessments on the staff members and also held initial sessions for the control group participants. I followed the same assessment format I used for the experimental group. I asked participants to continue whatever

type of oral hygiene method each was using. I explained the purpose of the gel and asked each to follow the written directions on the container (see Appendix G for the directions). The program evaluator coded gel and assigned it to participants following this session.

During the tenth week of the study, I completed the final assessment for the control group by recording all gingival and plaque scores. After examining each participant for the final time, I conducted individual instruction, gave each resident the appropriate oral physiotherapy aids, and gave each resident the dental resource card and a certificate of recognition.

At the conclusion of the study, I told each control group resident and each staff participant which gel each had been assigned. I gave a container of 0.4% stannous fluoride gel to participants who had been assigned the placebo. The week after completion of the study I sent letters to all members of the experimental group informing them of the gel each had been assigned. I asked those who had received the placebo to contact the program evaluator at the treatment facility with an address verification so that each could be sent a container of 0.4% stannous fluoride gel (see Appendix N for the letters).

In summary, I began data collection on March 4 and completed it on May 11; the investigation covered approximately 12 weeks.

With the assistance of two staff members, I collected qualitative data, completed medical-dental histories (Becker, 1979; Dodson, 1984; Molina, 1981; Schuckit, 1979), collected quantitative data, and scored the Gingival and Plaque Indices (Löe, 1967) prior to treatment

intervention on 26 residents from the experimental group and simultaneously on 14 staff members from one of the control group. I collected other qualitative data, reviewed psychosocial records, and daily documented interaction with participants (Ianni & Orr, 1978) during the treatment phase. After 3 weeks of intervention with dental instruction, I collected data from both the experimtnal and control group on the Gingival Index and the Plaque Index. As another control measure, one month later I collected pre- and post-treatment data on 23 alcoholic residents in the other control group. This group had no treatment intervention.

Another person coded the fluoride and fluoride placebo and randomly assigned them to members of all groups following pretreatment data collection. The double-blind approach (Craig & Metze, 1979) reduced the chance for experimental bias by controlling both the participant's and the experimenter's knowledge of the experimental conditions and expected outcomes.

Research Design

I investigated the basic research questions through the non-equivalent control group design (Campbell & Stanley, 1966) modified by using a second control group (Roos, 1973). Staff members served as a second control group, in this instance to control for alcoholism and as a representation of oral health status of the non-alcoholics in the treatment facility. The investigation of the fluoride treatment variable was a completely randomized (CR-2) design (Kirk, 1968).

Because using the natural setting restricted the randomization of individuals, I randomized by groups in time. I investigated the

manipulation of the independent variables by the modified non-equivalent control group design (Campbell & Stanley, 1966; Roos, 1973), diagrammed as follows:

	Pretreatment		Posttreatment
Experimental	O_1	X	O_2
Control ₁	O_1	X	O_2
Control ₂	O_1		O_2

The fluoride manipulation was totally randomized and was analyzed first as a completely randomized design (Kirk, 1968). In the diagram, the fluoride independent variable is noted as F_1 and the placebo as F_2 . The dependent variables are listed as PII for the Plaque Index and GI for the Gingival Index. S_1 and S_2 represent the subjects. The CR-2 design can be diagrammed as follows:

F_1 (Fluoride)		F_2 (Placebo)	
PII	GI	PII	GI
S_1		S_2	

With two dependent measures on each individual (the Gingival Index and the Plaque Index), the multivariate approach seemed to be the appropriate design. Using a multivariate approach reduced the problem of correlation between the indices producing an inflated F value. In other words, the multivariate approach is more appropriate than a series of univariate tests. Alternatives would be (a) to combine the Plaque Index and the Gingival Index into a composite score indicating general oral health, or (b) or conduct separate analyses for the two indices. However, a multivariate approach takes the unique contribution of each measure into account without violating

the assumption of the analysis of variance (ANOVA) as would also be done by running two separate analyses (capitalizing on chance by conducting multiple analyses).

Combining the designs, along with the two dependent measures, yields an overall multivariate design (Steel & Torrie, 1980). In the following diagram, F_1 is fluoride and F_2 is placebo or no fluoride. Subjects are listed as S_1 to S_6 . The Plaque Index is represented by PII and the Gingival Index is represented by GI.

		F_1 (Fluoride)		F_2 (Placebo)	
E		PII	GI	PII	GI
		(S_1)		(S_2)	
	C_1	PII	GI	PII	GI
		(S_3)		(S_4)	
	C_2	PII	GI	PII	GI
		(S_5)		(S_6)	

Design Validity

The modified nonequivalent control group design uses pre-assembled groups that are as similar as availability permits. The addition of a control group, even though it is not equivalent to the experimental group in all respects, makes certain threats to valid inference constant for both groups (Caporaso, 1973). Since extraneous events would probably also affect the control group, this design reduces the plausibility of alternative hypotheses which state that observed changes are a function of these extraneous events (Craig & Metze, 1979).

Internal Validity

I used identical recruitment procedures at different points in time to avoid self-selection. This was also an effort to increase control by having both groups as similar as possible in a naturalistic setting. A potential threat to internal validity was the selection differences, especially selection by maturation interaction (Campbell & Stanley, 1966). While experimentation took place over a short period of time (3 weeks), alcoholism recovery will vary with the individual and maturation rates could be affected.

External Validity

The fact that participants in the modified nonequivalent control group design in a naturalistic setting are not assigned to groups in such a way that they are representative of the population is a possible threat to external validity. The possibility exists for interaction between selection bias and the treatment variables. However, in this case the treatment variables would have an effect, but such an effect would be limited to the population sharing the selection characteristics of the experimental group (Caporaso, 1973).

To reduce the possible threats to the external validity of the reactive effect of the experimental procedures, the experimental phase of the study took place prior to recruitment of the control group. An attempt was made to keep the control group unaware of the experimental procedures.

The other possible threat to external validity is the interaction of testing on X. According to Campbell and Stanley (1966), if the experimental pretest-posttest is similar to those usually used, no

undesirable interaction of testing and X would be present. Since the indices used for assessment in this study are commonly used dental health indices, external validity should not be jeopardized.

Data Analysis

First, I analyzed the data by using the Wilks' criterion statistic. Following a significant F , I tested interactions between type of instruction and type of gel. I plotted significant interactions and conducted Tukey's Studentized Range (HSD) Test to determine the differences between the means.

Second, I tested main effects for fluoride and no fluoride and for instruction and no instruction to determine whether the null hypotheses could be rejected at the $p < .05$ level of significance.

Since the case study, when used in conjunction with quantitative methodology, can draw attention to information that cannot be obtained successfully in any other way (Hillman, 1964), I organized the qualitative component as a comprehensive case log. I included a detailed description of my daily interaction with the experimental group residents as well as staff members. I employed descriptive statistics on the variables that demonstrated possible relevance to this study.

CHAPTER IV

PRESENTATION OF DESCRIPTIVE AND EXPERIMENTAL RESULTS

Qualitative Data Results

The purpose of this study was to determine whether any type of dental health instruction, or self-administered fluoride, or a combination of the two, could be effective in improving the oral health status for alcoholics housed in a residential treatment facility for a short period of time. I tested combined individual and group dental health instruction, self-administered fluoride, and a combination of the two in a 50-bed publicly funded alcoholism treatment facility. I tested the effectiveness of the dental health instruction with one group of alcoholics receiving individual and group instruction and a comparable group serving as control. A group of non-alcoholics also received individual instruction and served as a control for alcoholism. Another staff member randomly assigned fluoride and a placebo gel to members of the three groups. I measured participants' oral health status, both before and after implementation of the treatment program, through data on two variables: (a) scores from a Gingival Index and (b) scores from a Plaque Index, and recorded both sets of scores. The dental health indices data served as the dependent variables for statistical analysis.

I tested the following seven null hypotheses:

For experimental and control groups

1. The preassessment and postassessment levels of oral health will not differ for alcoholics and non-alcoholics.

After 3 weeks staff will have no significant change in oral health status if they receive

2. Fluoride with dental instruction.

3. No fluoride with dental instruction.

After 3 weeks residents will have no significant change in oral health status if they receive

4. Fluoride with dental instruction.

5. No fluoride with dental instruction.

6. Fluoride and no dental instruction.

7. No fluoride and no dental instruction.

I used the descriptive data collected from the review of the client records and case studies on the experimental group to explore the relevance of this type of study specifically with an alcoholic population. I organized the descriptive data by first presenting a general description of the services of the treatment facility where I conducted the research. I then characterized representative experimental group residents by using information from their psychosocial records; personal, medical, and dental histories; and clinical notes recorded during the dental health instruction program. I concluded the descriptive data account by presenting a statistical summarization from the psychosocial records, and the personal, medical, and dental histories on residents from both the experimental and the resident control group.

Treatment Facility Service

The residential treatment facility is a component of a private, non-profit organization that provides comprehensive alcoholism services to alcoholics and their family members.

This organization receives the majority of its funding from the state. Additional monetary support includes local funds, client fees, third-party payments, and donations. Fees are based on a sliding scale, but no one is refused services due to inability to pay.

Generally, the target population for treatment services in this facility is composed of individuals whose current functional levels preclude them from adequately operating within the community. Frequently, these individuals are "revolving" in existing health care and/or social service systems due to the lack of adequate alternatives. Due to numerous problems in conjunction with alcohol abuse, these persons are in need of specialized domiciliary services.

Clients are generally referred for treatment through the Myers Act (a Florida act that is used by the court system to motivate alcoholics into treatment), the court's probation and parole system, or by voluntary self-referral. Persons referred to the domiciliary center are evaluated individually with the ultimate assessment decision determined by professional judgment.

This residential program provides not only intensive treatment and rehabilitation, but also medically supervised care. Involvement with Alcoholics Anonymous (AA) is an integral part of treatment and the AA philosophy of recovery is the core of this inpatient program.

Progress through the treatment program is guided by various developmental stages or phases. The phases are defined in terms of functional goals and strength of sobriety, including coping skills, as well as vocational, spiritual and emotional strength. The final phase of the program is the transition of clients to support systems and community services which will help them maintain sober, independent living.

Descriptions of Representative Residents

Qualitative data were collected on all members of the experimental group. The descriptions of the following representative residents provide a characterization of the alcoholics in domiciliary treatment during the time of this study.

Client 1 is a 47-year-old white male. He has been married two times and is presently separated. He has an 18-year-old son and a 17-year-old daughter. He lives with his mother, stepfather, grandmother, and his two children. He has had two years of college and vocational training in welding, auto mechanics, and auto body work. He worked as a welder for 28 years and is currently unemployed.

Client 1 was born in Florida and raised by both parents. He is the oldest male and the second oldest child in a family of three boys and five girls. He described his mother as "very dear, easy to get along with, a survivor and struggler and someone who communicates free hearted." He depicted his father as "an alcoholic who always tried but the alcohol did his dealing. He was a good, caring person." His father died in 1983. Of his home life, the client said it was hard and that they were poor. He lived on a farm

most of his life. He stated that his relationship with his family was good. He said he was unable to communicate with his children and described his relationship with them as poor. He said that both children sniff glue and are not in touch with reality.

The client volunteered for treatment and his current legal status was clear; that is, he had no pending court hearings for any legal infractions. He is classified as minimal residential and this is his second time in treatment. He has been through the detoxification center three times and has lived in halfway houses on two previous occasions. He reported that he has been in jail 25 times for alcohol-related incidents and one time for a non-alcohol-related incident (he was convicted of an assault to murder and spent 5 years in prison). He also reported that he had had 12 Drinking While Under the Influence citations (DWIs), the last one being in 1973.

The client stated that in his late twenties he had his first contact with alcohol, first drinking experience, first intoxication, and first eye opener. While he also experienced relief drinking, hallucinations and loss of control in his late twenties, he did not have his first blackout or morning tremors until his early thirties. The client noted personality changes and consistent fights beginning at age 33. He denied that he had ever experienced convulsions or delirium tremors. His drinking did cause problems with his family, finances, health, and sex. Client 1 generally drank alone and on a daily basis. His present reported drinking pattern consisted of a case of beer and a fifth of whiskey over a 24-hour period. His peak drinking was two fifths of liquor and at least a case of beer in 24 hours. He had his last drink on February 2, 1984.

The client stated that he had never used any other drugs. He also denied having overdosed, having experienced withdrawal, or having had an adverse reaction to alcohol.

Medically, the client stated that he almost always experiences shortness of breath after mild exercise and that he has a persistent cough. He smokes one and a half packages of cigarettes daily. Client 1 reported that he had gonorrhea on two occasions, with the last occurrence being at age 27. As a result of a broken nose, he developed a benign growth which was surgically removed. He had cataract surgery on his right eye but ultimately lost his sight in the eye. In 1983, he had plastic surgery on the right side of his head. Although professionals recommended contact lenses after this last surgery, the client never followed up on this recommendation. He is currently taking antabuse and vitamin B complex with zinc.

All current levels of functioning were recorded as being within a normal range except for the possibility of depression. His self-image was recorded as fair.

The last dental visit Client 1 made was in 1981 at which time he had a tooth extracted with no complications. He stated that he brushed his teeth two times a day with a medium bristle toothbrush. He has never used dental floss and experiences only occasional gum bleeding when he brushes. He usually chews on the right side of his mouth due to the missing teeth on the left side. He stated that he usually has many cavities and often loses or breaks fillings. He also reported that he breathes primarily through his mouth.

Upon initial oral cancer examination, the client had six suspicious areas in his mouth. He also had a beefy red tongue with

slight glossitis and enlarged salivary glands. I also noted suspicious areas around the nose, cheeks, and both eyes. External palpation revealed a slight nodular area in the neck region. He had heavy black stain on his teeth and both extensive supragingival and subgingival calculus deposits. He was missing nine teeth and the remaining teeth were very mobile. His initial gingival and plaque indices were in the poor range.

When I conducted the first individual oral hygiene instruction, the client's oral hygiene was poor, as evidenced by red cote staining. Client 1 had some initial problems in using the toothbrush, but after several attempts he stated he was comfortable with the new method. He expressed surprise when I told him to dry brush at night and to reduce the amount of toothpaste he was using. During this session, the client asked me several questions about his sexual dysfunction and wanted to know if it was related to the antabuse he was taking. I explained that the cause was probably his alcoholism and not the medication. We spent a short amount of time on this topic and he related his ability to talk with me because I really seemed to care. He said he looked forward to seeing me because I made him feel good about himself.

During group instruction, Client 1 stated that he was surprised that he could save some of his teeth. He thought they would all need to be pulled. He said that I really motivated him to work harder to keep his teeth clean. He also said the group was good because members challenged each other to see who would have the best home care report. Client 1 also said that he felt more like smiling and

that he definitely felt better about himself. He wants to return to work as a welder and then pursue getting his teeth fixed.

I instructed the client on flossing techniques by demonstration on a dentoform, the block model, and in his mouth. He then did a return demonstration in the three areas and was able to show proficiency. I also showed him how to work the gel between his teeth and into the gingival crevice. I recommended that he have his upper right second molar checked by an oral surgeon.

During the second group discussion, Client 1 told me the oral surgeon had extracted his tooth and advised him to have all his teeth taken out because he was going to lose all of them anyway. He said he was upset and told the dentist that he intended to keep his teeth as long as possible. He said that for the first time someone was telling him how to care for his teeth and that he was going to keep them as long as possible. He was doing well with his brushing, but having some problems with the floss. I showed him how to use the proxybrush and rubber tip and he said he felt more confident in his ability to use these aids.

Client 1 stopped by for an unscheduled appointment and had me check his home care. He used the disclosing tablet and I had him show me how he was using the dental aids. He had made some improvement and stated that he felt more comfortable with what he was doing.

The client came by the next day with his floss and viewed the film on flossing technique. He said he still wanted to try the floss because one day he would "master" it. During the simulation exercise, he played the role of "flosser" and by using the belt to demonstrate flossing, he said he could more clearly see how it was done, but it was still difficult to do in his own mouth.

On the final assessment, the client's gingival status showed little change; however, on the Plaque Index he showed considerable improvement. His score went from a 2.80 to 1.33. He said he had been using the gel every other day (he was assigned the placebo) and that his mouth really felt much better. He said he planned to follow up on the dental prophylaxis as soon as he finished treatment. He said he really appreciated the program and all the help because now he really does not want to lose his teeth.

He showed me a picture of his daughter and her baby and said he was upset because she was going to put the baby up for adoption. We talked for awhile about his family problems with his estranged wife and the two children. He said he really hoped the family situation would not cause him to start drinking again. I told him no one could cause him to drink and that he would need to concentrate on not using this as an excuse to turn to alcohol again. We discussed several alternative strategies to open family communication, and I emphasized the need to use his AA support groups. He said I was really a people motivator and that he would try hard to follow up on my advice. As he was walking out the door he said, "You have helped me in more ways than you will ever know."

Client 2 is a 24-year-old white male. He has never been married and lives with his mother. He has a high school equivalency diploma and vocational training in bricklaying. He had recently worked as a concrete finisher but is currently unemployed.

He was born in Maryland. His parents were divorced when he was young and he was raised by his mother and stepfather. He is

the oldest male in a family of five brothers and three sisters. He described his mother as "great, very understanding, easy to talk to, and loving." He said he could not really describe his father because he had not seen him in 17 years except on occasional weekends. He said he still had some resentment and emotional hurt toward his stepfather's suicide. Of his home life, he stated that it was great and that he had good communications with all his family members. He said he was very athletic but did not like school and that this had caused some problems. He did not know if anyone in his family was an alcoholic. Regarding his family's attitude toward his drinking, he stated that they did think he had a problem, but they do not feel like it is out of control. The client also said that he feels like he has a problem but he does not feel that he is an alcoholic. He said that he only had a slight drinking problem because he seldom drinks liquor. He also stated, "I don't feel I'm powerless over alcohol."

The coercive factor that put the client in alcoholism treatment was a court order. He was referred by his federal parole officer. He is listed as a residential client. The client stated that he had never been in detoxification or previously treated for alcoholism. He had, however, been in jail six times for alcohol-related incidents, and one time for a non-alcohol-related incident. He has had only one DWI, in late 1983. His current legal status was listed as parole.

Client 2 stated that his first contact with alcohol was at age 17, followed shortly by his first drinking experience and first

intoxication. He denied having ever experienced a first eye-opener, relief drinking, blackout, loss of control, or morning tremors. He also denied any convulsions, hallucinations, or delirium tremors, and stated he was involved in fights only as a means of self-defense. The client usually drinks with friends and only on weekends. He stated that at his peak drinking he averaged a case and a half to two cases of beer over a 24-hour period. He had his last drink on January 27, 1984.

Client 2 also reported that he used other drugs including quaaludes, speed, acid, and glue sniffing. He denied adverse reactions to any of these drugs and further stated that he had never attempted suicide.

Regarding his current levels of functioning, both his judgment and insight were recorded as below average. There was uncertainty as to whether the client was depressed; however, he expressed fear and appeared anxious. His desire for help and his attitude were listed as fair and his self-image was noted as poor.

The client reported no physical handicaps and no serious illnesses or surgeries. He did state that he had been treated for syphilis in 1979 and again in 1983. The client smokes one and a half packages of cigarettes daily. He is currently taking antabuse and vitamin B complex with zinc.

The client's last dental visit was in 1982 at which time he had a third molar extracted with no complications. He stated that he brushed his teeth four times a day with a soft bristle toothbrush. He also said that he had used dental floss in the past, but that it

made his gums bleed. His gums also bleed if he brushes too long. He stated that his teeth are sensitive to cold foods and liquids and that he clenches his jaws while sleeping.

On the initial examination, the client did not appear to have any oral abnormalities. He did have a coated tongue and thick, viscid saliva. Initial examination also revealed extensive tooth decay, and both moderate stain and calculus deposits. The client was missing six teeth. His Gingival Index was in the fair range at 1.56 and his Plaque Index was poor at 2.45. The client had little verbal response and only stared at me during the initial examination.

The client was able to demonstrate his ability to use the toothbrush with a limited amount of instruction. He expressed surprise when I told him to reduce the amount of toothpaste and to concentrate on how he used the brush. He said he thought that the more toothpaste you used, the cleaner you could get your teeth. Before he left, he stopped by the door and asked if I was married.

Client 2 did not come to the group instruction. His roommate said that he had had an argument with his counselor and that he was depressed. I asked everyone in the group to encourage the client to come back into the program the next week and to tell him that I would schedule him for another individual appointment.

Client 2 did not keep his individual appointment, so I asked one of the residents to tell him that I wanted to talk to him. He stopped by before the next group meeting, apologized, and told me that if it was not too late that he wanted to come back into the program. With limited instruction, he was able to use the floss.

He said he had been practicing and that his roommate was helping him. I demonstrated the use of the stimulator and again showed him how to work the brush between the tooth and gum. He was very receptive and even helped to show the others how to floss when we did group instruction.

The client did not attend the next group session and missed the film. The day prior to the final assessment, he stopped by and told me that he missed the other sessions because he was not having any problems.

During the last examination, the client said he was going to continue to work on remembering to floss. He said he knew how to floss and felt he could do better. While his gingival status had improved only slightly to a 1.45, his Plaque Index showed considerably more improvement at 1.66. He stated that he had been using the gel daily and felt that it really helped (he was assigned the placebo). He wanted to know when I would tell everyone about the gel because if he did not have the real thing, he wanted to make sure that he got it because he felt that it would make a difference.

Client 3 is a 43-year-old white male. He has been married four times and is currently divorced. He has nine children. He stated that he has no current residence. He quit school in the eighth grade, but has vocational training in plumbing, welding, jewelry making, and nurses' assisting. He worked as a merchant marine cook for the past 20 years and is presently unemployed.

Client 3 was born in Louisiana. Both of his parents are deceased. As the youngest of nine children, he was raised by relatives from the time he was eight years old. He described both

his mother and his father as ignorant and uneducated. He said that both died from alcoholism. In depicting his home life he said, "I was abused--an outsider, an outcast." He maintains no contact with any of his family members.

The client referred himself to treatment with the coercive factor recorded as alcohol. His current legal status is clear and he is classified as a minimal resident. He has been in the detoxification center 16 times, lived in halfway houses two times, and rescue missions four times. He has also been treated for psychiatric problems in the state mental hospital, Veterans Administration (VA) hospital, and outpatient mental health clinics on 12 occasions. He was treated for alcoholism four times between 1980-82. He has been in jail approximately 85 times for alcohol-related incidents and 1 time for 4 years for a non-alcohol-related incident. He has had 11 DWIs, the last one in 1970.

The client stated that his first contact with alcohol was at age six. His first drinking experience, first intoxicification, and first relief drinking occurred at age 12. He had his first blackout at age 15, first fight at age 16, his first eye opener at age 21, and first loss of control at age 25. He had experienced convulsions, hallucinations, and delirium tremors by age 27. The client denied any personality changes due to alcohol. He did say that alcohol had caused problems with his job, family, finances, health, and sex. The client usually drinks alone and on a daily basis. He stated that at his peak drinking he averaged two quarts of wine with two cases of beer over a 24-hour period. He had his last drink on February 6, 1984.

He stated that he had used downers several years ago and numerous other drugs in the past. He also said that he had snorted cocaine on February 6 prior to his admission into treatment. The client indicated that he had suffered both withdrawal and adverse reactions to alcohol. He had also attempted suicide three times with the last attempt in 1979 when he drank two quarts of rubbing alcohol.

Client 3 stated that he had hepatitis in 1982 and that he currently has an enlarged liver. He has asthma and has been on bronchial spray medication since childhood. He also reported that he had had two major hernia surgeries with recurring problems. He does not smoke but persistently coughs up blood when drinking. He is taking antabuse and vitamin B complex with zinc.

The client's levels of functioning indicated that his desire for help was good and his attitude fair. He appeared to be depressed and had a poor self-image. All other levels of functioning were within a normal range.

The last dental examination Client 3 had was in 1983 at which time he had four teeth extracted. The client stated that he used a hard bristle toothbrush two times a day. He has never used dental floss. His teeth are sensitive to cold foods and liquids and he chews only on the right side to avoid pain on the left side. He said his gums often feel tender or swollen and he loses or breaks fillings easily.

On making the initial oral cancer examination, I noted two suspicious areas. The client also had a coated tongue and enlarged parotid glands. He had extensive heavy stain and calculus deposits

throughout his mouth and was missing 10 teeth. During the initial examination, he was cooperative and said he was eager to learn because he really wanted to keep his teeth.

When I conducted the first individual instruction, Client 3's home care was fair-poor as evidenced by the red cote staining. He was able to follow instructions easily, but teased me about the program. He said he thought it was silly, but would do it to please me. He commented on how I looked and said that he looked forward to seeing me. I told him that he really needed to do his oral home care for himself and not just for me because I would not always be there. He said he would stick with the program and use the gel although he did not like the taste. He also told me that he was a merchant seaman but had lost his job because of his drinking. He said he had also been a nurse's aid in the Veterans Administration hospital and he asked if I would help him decide what type of work he should do when he finished treatment.

During the first group instruction, Client 3 was very quiet. The only comment he made was that the program was a good idea and he thought that he could save his teeth. During one part of the discussion, I noticed that he had dozed off.

The next week I learned from several other program participants that Client 3 had decided to quit the dental program. I found him in the "fishbowl" and asked if he would come talk with me. He told me that he had heard all this information before and he thought that I would be able to fix his teeth. I asked if he had ever used the rubber tip stimulator and he said no, but that he would like to see it. I demonstrated its use and then let him try it. He was able

to use it and said that it seemed to make sense and that he really wanted to continue in the program. He came by later that day and brought me an apple.

After the next group instruction, Client 3 stayed to talk. He said that he really liked the stimulator and was using it every day. He also told me that he used to be a chef and he thought he would rather do that than complete the LPN training suggested by his counselor. He spent about 15 minutes talking about all the foods he could cook and wanted to know if I thought he would be a good chef. He also wanted to know if I had eaten the apple he gave me because he had another one to give me.

The client missed the film, but he did participate in the simulation exercise. He was one of the toothbrushes, and he said he thought this was the best part of all the instruction because it was fun but still taught them something.

On the final assessment, the client's gingival status showed little improvement, with a 2.60. His Plaque Index score had dropped to a 2.10 which put his home care on the borderline of fair. He said he felt that his home care had really improved and he was glad that he stayed in the dental program. He said the best part was the "skit" and the rubber tip stimulator. He said he had used the gel only on several occasions because he did not like the taste (he had the placebo).

Later in the day he brought me another apple and helped me put my materials in the car. He asked if I would come to the annual picnic and if he could still come visit with me when I was working with the other group.

Client 4 is a 24-year-old white female. She has never been married and lives with a friend. She has an eight-year-old child who was adopted by her parents. She does not see her child often. The client finished high school but has had no vocational training. She has worked as a bartender and a cashier. She lost her last job because of her drug abuse. She has been unemployed for one and a half years.

The client was born in Florida and lived with her natural parents for her first five years. They were both alcoholics and accused of child abuse. She was raised by her adoptive parents and lived with them for 8 of her 10 years. She was a ward of the state for 2 years. She described her adoptive mother as very religious, aggressive, and a good person. She said her adoptive father was an easy going, good person but he was away from home a lot. She said her home life was very strict and her parents showed partiality. She ran away from home a lot and lived in juvenile shelters on several occasions. She stated that her relationship with her family was good and that she was just building a relationship with her older sister. She stated that neither of her parents drank, and that they do not like nor accept her drinking.

The client was referred by the staff at the detoxification center. She reported the coercive factor as her desire to stop drinking. She is classified as a minimal resident. She has been in detoxification on two occasions and received medical attention once for a physical problem related to alcoholism. She had had one alcohol-related arrest and has also been in jail one time for a non-alcohol-related incident. She had one DWI in 1981. Her current legal status is clear.

The client stated that her first contact with alcohol and her first intoxication were at age eight, while her first drinking experience occurred at age 12. Her first loss of control and noted personality changes appeared at age 18. By the time she reached age 21, the client had experienced her first eye opener, relief drinking, first blackout, morning tremors, fighting, and hallucinations. She stated that alcohol had caused problems with her job, health, and finances. She denied having ever experienced convulsions or delirium tremors. Her present reported drinking pattern over a 24-hour period was two six packs of beer with a peak of three six packs of beer and one pint of liquor. The client had her last drink on January 20, 1984.

The client also stated that she had regularly used numerous other drugs including cocaine, pot, uppers, and downers. She began using these other drugs at age 12 and her last drug use was on January 11, 1984, when she injected cocaine. She has been hospitalized due to withdrawal symptoms and an adverse reaction to a combination of alcohol and drugs. She attempted suicide twice at age 10 and 12 by taking overdoses of sleeping pills. She stated that the cause was family problems.

The client has had only two minor surgeries and has been treated twice for syphilis. Just prior to entering alcoholism treatment, she had an abortion and she was still being treated for a bacterial infection. She stated that she does feel pain in her chest upon exertion and shortness of breath after mild exertion. She said she has been coughing up blood periodically for several years. She smokes two packages of cigarettes daily. She is taking antabase and vitamin B complex with zinc.

Her judgment and insight were recorded as below average and she appeared somewhat depressed. It was also noted that she had low self-esteem and a poor self-image. All other levels of functioning were within normal range.

Client 4's last dental visit was 10 years ago when she had her orthodontic bands removed. The client stated that she used a hard bristle toothbrush two times a day. She had used dental floss in the past but stopped because it made her gums bleed. She said her gums often feel tender or swollen. The client also noted that she felt twinges of pain when her teeth come in contact with sweet or cold foods and liquids. She chews primarily on the right side of her mouth, clenches her jaws while sleeping and breaks fillings easily. She usually breathes through her mouth and bites her cheeks, lips, and fingernails.

Upon initial oral cancer examination, I noted no clinical abnormalities. The client had moderate decay, stain, and calculus deposits. She was missing eight teeth. Her Gingival Index, 1.17, and Plaque Index, 1.72, were in the fair range.

During the first individual instruction the client easily demonstrated her ability to use the brush to properly clean all tooth surface areas. She said that she had really been working on her home care since I first examined her mouth and she felt that she was doing much better. The only caution I had to give was for her to not be overzealous, and to make sure she used only a soft bristle toothbrush and the new technique. Her home care was good as evidenced by red cote staining. She had just learned that she was finishing treatment the next week and she wanted to make

sure that she could continue in the dental program. I agreed to spend more individual time with her to demonstrate the new techniques and assured her that I would come to the halfway house and follow up on her progress. We spent about 30 minutes talking about women's rights and equality. She said that she really wanted to straighten out her life, get a good job, and go to school. Client 4 said she would like to be an X-ray technician or a dental assistant. She asked me if I would do vocational counseling with her. She told me that I was the best counselor she knew and that it was obvious that I cared and had people skills. She said that I had become a role model for many of the female residents.

I worked with this client again individually and in a small group. We did demonstration/return demonstration in her mouth and also used the other teaching aids to help her understand the "how to" of flossing. We reviewed flossing several times and she was able to demonstrate her ability to floss; however, she felt it was difficult. I showed her how to use the rubber tip stimulator, to which she responded very favorably. She agreed to continue to work with the floss and to use the stimulator as a substitute. Client 4 told me that she was very concerned about what "speed" had done to her upper anterior teeth and that she really wanted to follow up by having her dental work completed. I recommended the community college dental hygiene program for a complete prophy and further evaluation. She was very interested but wanted me to do the prophy. I told her that this was not possible because I was not on their staff; however, I knew all the instructors and could confidently assure her that everyone there was well qualified. She said she would follow up because of my strong recommendation and that she trusted my opinion.

I saw the client again for individual instruction. She had many questions on flossing and was pleased because the red cote staining showed that her home care had greatly improved.

During the final assessment, the client again asked when I could come to the halfway house. She wanted to follow up on the dental program as well as her vocational program. I told her that it would be about 2 weeks before I would be going to the halfway houses. Her home care was much improved. She was having no trouble with the brush; however, flossing still posed problems and she was using the rubber tip most of the time. Her Gingival Index score dropped to a 1.06 and her Plaque Index to .08, which is well within the good range. She was using the gel daily and had been assigned the placebo. She told me that the program really made her feel better about herself and she felt that she finally had a good start on life.

I did see the client later at the halfway house. I checked her home care which looked great and together we reviewed the dental program. She was working and planning to enter a vocational program in several months.

Client 6 is a 55-year-old white male. He has been married one time, has no children, and is currently divorced. He has a bachelor's degree and has worked as a sports writer, salesperson, and state social services employee. Alcohol has caused him to lose all of his jobs and he is presently unemployed.

He was born in Tennessee and was raised by both parents. His parents, only brother and one sister are deceased. He was the youngest of four children and stated that his relationship with his sister is excellent. He described his mother as "an angel, near

saint, loved by all, adorable." He depicted his father as, "a hard worker, good provider with no time for a son who was an accident." Of his home life the client stated that he had a loving mother and stern father, and that most of his needs were met. There is no history of alcoholism in the client's family, and he said that members of the family were unaware of his drinking problem for many years.

The coercive factor that placed the client in treatment was a court order under the Myers Act. He is classified as a minimal resident. The client has been in detoxification on 30 occasions, in the Salvation Army one time, in halfway houses three times, and in rescue missions several times. He has an extensive history of psychiatric problems and has been treated in state mental institutions and mental health clinics more than 15 times. He has been treated for alcoholism eight times, the most recent treatment in 1981. He has been in jail 30 times for alcohol-related incidents and has had 6 DWIs, the last one in 1973. His current legal status is the Myers Act.

Client 6 stated that his first contact with alcohol was at age 14. His first drinking experience and first intoxication occurred at age 16, and his first blackout at 17. He began relief drinking, experienced loss of control, and had his first eye opener at 18. At age 22 he began to have morning tremors. By 28 he had had convulsions and hallucinations, and by 37 was experiencing delirium tremors. The client stated that alcohol had caused problems with his job, family, finances, health, and sex. He stated that he drinks daily, alone or with friends. Prior to this admission, he

had been sober for 18 months. During this current binge, his drinking pattern was two six packs of beer with a peak of one case of beer in a 24-hour period. He had his last drink on January 29, 1984.

The only other drug that this client uses is an antidepressant which he takes three times daily as prescribed by his physician. He has been on this medication for more than three years. He did attempt to overdose with a combination of elavil and alcohol on January 23, 1984. He has also attempted suicide on five other occasions.

All levels of functioning were listed within a normal range. However, the evaluator had been uncertain whether the client was depressed, and listed both the self-image and the desire for help as fair.

The client had polio at 13, and at 40 sustained a severe face injury in a fight. He has bursitis in his right shoulder and reported that he has chronic gastritis. He had several non-malignant tumors removed from the back of his skull when he was 43 and had had high blood pressure for several years. He smokes one package of cigarettes a day. In addition to the antidepressant, he is also taking antabuse and vitamin B complex with zinc.

The client's last dental visit was 20 years ago at which time he had several teeth extracted. He stated that he always had complications with his dental treatments. He uses a medium bristle toothbrush five times a day but has never used dental floss. He stated that his teeth are sensitive to hot foods and liquids and that he chews on the left side of his mouth since this is the only side with teeth. He stated that his gums often feel tender or swollen, he

gags easily, and he usually loses or breaks fillings. He bites his cheeks and lips and breathes primarily through his mouth. He stated that he always experiences dryness of the mouth, possibly due to the medication.

Upon initial oral cancer examination, the client had five noted suspicious areas. His tongue was coated and geographic in appearance. He had extensive heavy stain and both supra-gingival and sub-gingival calculus deposits. He was missing 15 teeth and the remaining teeth showed extensive carious lesions. His gingival and plaque scores were both in the poor range, the former a 2.07 and the latter a 2.44. During this examination appointment, the client talked extensively about his psychiatric problems and recent suicide attempt. He said he believed he could now maintain sobriety and that he felt his teeth were important to how he looked and felt about himself. He said this dental program should also help him with his sobriety.

During the first individual instruction, the client tried hard to master the brushing technique. He was able to follow instructions, but I had problems in curtailing his overzealousness in brushing. His initial home care as evidenced by red cote staining was poor. He said he used a lot of toothpaste because he felt that the more he used and the harder he brushed, the cleaner he could make his teeth. He said he looked forward to seeing me and that in talking with me he felt more confident about himself. He stated that he really wanted to participate in the program and cooperate because he wanted to learn how to take care of his teeth. He also asked if I could smooth his upper front tooth that he had chipped in a fight. He said that he had a standing psychiatric counseling

appointment and that it conflicted with the time he was scheduled for the group instruction. He was anxious about missing any parts of the dental program and wanted to know if he could be in a different group. I reassured him that there were no problems and that he could be in the earlier group instruction. I emphasized that his alcohol and mental health problems should definitely be his priorities.

Client 6 missed the first group instruction because he had to be in another location for phase four of the treatment program. He had one of the other residents schedule his next dental appointment.

The client appeared very anxious while he attempted to use the dental floss. He became frustrated and I spent about 30 minutes working with him. He said that it was important for him to learn to use the floss. I did not want to substitute the rubber tip stimulator because this could give him a defeated attitude. I continued to encourage him and demonstrated floss use. By the end of the session, he was able to use the floss adequately.

During the next group instruction, Client 6 appeared much more relaxed and easily demonstrated his ability to use the proxybrush and rubber tip. I did need to work separately with him because he was overzealous with these aids and caused his gums to bleed. Several of the other participants also worked with him and the group interaction appeared to be successful. By the end of the session, he was using both the proxybrush and the stimulator with apparent ease and adequacy.

During the next individual instruction, the client was able to use all the dental aids and was not "over doing" any of them. He told me that the program had really helped to build his confidence

in himself, and that while I expected a lot, I made him feel relaxed and comfortable. He said I helped him to become more self-motivated and dependent on himself.

He stopped by again for a different group instruction to tell me how much he liked the rubber tip and proxybrush. He said his mouth really felt great. The client also wanted to know if it was o.k. to use the gel more than once a day. He said he was using it four or five times daily and felt that this was a good idea. I strongly recommended that he reduce the gel use to only once a day and told him using too much gel would be more of a disadvantage. (I later learned he had been assigned the placebo gel.)

Client 6 attended the flossing film and said it looked almost "too easy" in the film. He said he was much more comfortable using the proxybrush and the stimulator. He also participated in the simulation exercise as one of the "teeth." He said that this was one of the best parts of the education program because you could have fun and still learn. He also said that if more education was like this, kids would stay in school longer because they would know their teachers really cared.

During the final examination, the client was very excited. He felt he had done well in the program and wanted to get his teeth fixed because he now knew he could save them, and he also realized how important his smile was to his overall feeling about himself. Scores on his Gingival Index moved into the fair range with a 1.85 and on his Plaque Index also dropped considerably to a 1.70. He said that he was delighted with the dental program and that since he was also finishing his treatment program the next day, the combination really boosted his ego.

Client 7 is a 34-year-old white female. She has been married four times, is currently divorced, and is living with her boy friend and other friends. She has five children, none of whom live with her. Client 7 quit school in the tenth grade and has had no vocational training. She has worked in construction and as a waitress. She stated that she had lost several jobs due to alcohol and that she is presently unemployed.

Client 7 was born in Georgia and was raised by both parents. She is the second oldest child in a family of three boys and two girls. She described her mother as "a good person, neat and clean; she worked hard all her life and was constantly helping people." She depicted her father as "great, a hard worker; he never fussed and just told you things; he never hollered or yelled." Of her home life the client said that her parents argued and fought a lot and were now divorced. She said she had a fairly good childhood and had been on her own since her first marriage at age 15. The client said that her relationship with her family was good. She did not know if there was a history of alcoholism in her family and was not aware of the family's attitude toward her drinking.

The client was referred to treatment by a court order; however, her current legal status is clear. She is classified as residential. She has been in detoxification on only one other occasion and has no prior treatment for alcoholism. She has been in jail three times for alcohol-related incidents. She has never had a Driving While Under the Influence citation.

The client stated that she had her first contact with alcohol and her first intoxication at age 13. She began relief drinking,

noticed a personality change, and had her first drinking experience at age 21. Shortly after she had her first eye opener and began to get involved in fights. She had her first blackout at age 23 and by 25 she had morning tremors and a loss of control over alcohol. She denied having experienced convulsions, hallucinations or delirium tremors. She said that alcohol had caused problems with her job, finances, and family. She usually drank daily with friends. Client 7 usually drank two six packs of beer with a peak of two cases of beer and one half-pint of liquor in a 24-hour period. She had her last drink on February 24, 1984.

The client stated that she started using other drugs at age 17. She used narcotics until she was 21. She used acid and tranquilizers until last year, and her last date of pot use was February 25, 1984. Client 7 said that she overdosed on heroin at age 21 and was placed in a mental institution for a short time. She also reported that she had attempted suicide on two occasions. On the last occasion she cut her wrist while drunk. She became scared and had her boyfriend tape the cuts. She was not medically treated for this last attempt.

The client reported that she had hepatitis at age 25. She experiences pain in her chest upon exertion and smokes one package of cigarettes a day. She stated that she had no other medical problems. She is currently taking antabuse and vitamin B complex with zinc.

Her judgment and insight were recorded as below average with a noted indication of possible depression. Her self-image was also

recorded as poor. All other levels of functioning were recorded as being within a normal range.

The client's last dental examination was in 1971 at which time she had a tooth extracted. She uses a hard bristle brush three times a day and does not use dental floss because it makes her gums bleed. She said she usually has many cavities and breaks or loses fillings easily. She bites both her cheeks and her fingernails.

On the initial oral cancer examination, I noted two suspicious areas and slightly enlarged parotid glands. The client had extensive heavy black stain and calculus deposits throughout her mouth. She was missing five teeth and had many areas of decay on her remaining teeth. Her initial Gingival Index was 2.08, her Plaque Index, 2.29. The client was somewhat negative during this initial examination.

When I conducted the first individual instruction, the client's oral hygiene was fair as evidenced by red cote staining. She said she had started working on her home care after her initial examination. She had a more positive attitude and was receptive to the instruction. She demonstrated proficiency with only a small amount of instruction and demonstration. She expressed surprise about limiting the amount of toothpaste and the desirability of brushing her tongue. She asked if her children should also use the fluoride gel and brush in the same manner as I was showing her. I told her that this would be a good idea if she would work with them on the technique. She stated that she was feeling better about the dental program and about her mouth. She said she really appreciated everything that was being done for her. She told me that she was still somewhat suspicious about my motives and was not really sure why I was doing all of this for a

"bunch of alcoholics." She said that when she got to know me better maybe she would feel more "sure about me."

During the group instruction, the client said she came into the program because she wanted to save her teeth. She wanted to know more about the community college dental hygiene program to see if she could really follow up on her dental care. She freely demonstrated the brushing technique to other group members and said that helping others was a good way to learn. During an open discussion about feelings, she asked me what I thought about people in the program. She wanted to know if they were what I expected. After the session, she came to me privately and said that she really believed that I was "o.k." She said that it was hard for her to trust people, but that many of the other women had said that I was a good role model and she was beginning to agree with them. She also said she was not sure why I cared, but that she really did believe that I showed caring and love.

The client missed the next individual and group instruction. When I saw her in the "fishbowl," she said she had been preoccupied but wanted to know if she could come back for additional instruction. Later that day she came in and we worked together on her flossing technique. She had a few problems initially but was eventually able to use the floss. I showed her how to use the rubber tip stimulator and reviewed sucular brushing. She was able to demonstrate proficiency in both areas.

Client 7 participated in the simulation exercise both as a "tooth" and as a "flosser." I had her lead one of the other groups in this exercise and she stated that this was the liveliest part of

the program and the best way to learn. She also said that leading the group made her feel important and good about herself.

On the final assessment, the client's gingival status showed only a slight improvement at 1.94. The score on her Plaque Index showed more improvement with a 1.66. She said that she had used the gel only two to three times a week, but felt that it really helped (she had been assigned the placebo). She said that from the beginning she believed in the benefits from the dental program and that, although it took her longer, she did realize that I cared about each one of them. She said that my enthusiasm had finally "gotten to her" and that she was beginning to feel better about herself.

Statistical Summarization of Descriptive Data

The total experimental group population included 28 alcoholics; however, two individuals left treatment against medical advice (AMA) prior to completion of the study. Descriptive statistics for the control group are based on 23 alcoholics; however, four people left treatment AMA. Psychosocial information was not available for four other control group participants who did complete the dental program.

Out of the total sample population of 51 alcoholic participants, 62.75% were white males and 15.68% were black males with a total male population of 78.43%. Of the total group 19.61% were white female and 1.96% were black female with a total female population of 21.57%. In the experimental group, 43.14% were male and 11.76% were female. By race 49.02% were Caucasian and 5.88% were Black. The control group was comprised of 35.29% males and 9.81% females with a population of 33.32% Caucasians and 11.76% Blacks. Out of this same population,

44.44% were classified as residential (acute alcoholics) and 55.56% were categorized as minimal residential (chronic alcoholics). Further analysis revealed that 37.78% were residential males and 6.67% were residential females. Minimum residential males comprised 40% of the total sample population and 15.55% of the females were classified as minimal residential. The experimental group had a total of 22.22% residential and 35.56% minimum residential clients. In the control group, 20% were residential clients and 22.22% were minimum residential clients.

The typical male in the experimental group can be characterized as Caucasian, 39 years old, 5 feet, 8 inches tall, weighing 164 pounds. The typical female was Caucasian, 5 feet, 2 inches tall, weighing 127 pounds.

In the control group, the average male was also Caucasian, 39 years old, 5 feet, 8 inches tall, weighing 164 pounds. The mean age for the females in the control group was 43. The average female was Caucasian, 5 feet, 6 inches tall, weighing 157 pounds (Table 1).

Table 1

EXPERIMENTAL AND CONTROL GROUP MEANS AND STANDARD ERRORS OF MEASUREMENT FOR HEIGHT AND WEIGHT BY SEX

	\bar{x} Height	Standard Error	\bar{x} Weight in Pounds	Standard Error
Experimental Group	5'7"	.859	155.42	6.02
Male	5'8"	.737	163.85	6.63
Female	5'2"	1.140	127.33	4.71
Control Group	5'7.5"	.540	162.80	6.62
Male	5'8"	.562	164.30	5.48
Female	5'6"	1.110	157.50	25.50

Members of the experimental group had had an average of 1.3 marriages, while the control group participants had been married an average of .95 times. Experimental group members typically had 1.92 children and an average of 3.89 brothers and sisters. In the control group participants had an average of 1.84 children and 2.52 siblings (Table 2).

Table 2

EXPERIMENTAL AND CONTROL GROUP MEANS AND STANDARD ERRORS OF MEASUREMENT FOR NUMBER OF MARRIAGES, CHILDREN AND SIBLINGS BY SEX

	\bar{x} # Times Married	Standard Error	\bar{x} # of Children	Standard Error	\bar{x} # of Siblings	Standard Error
Experimental Group	1.3	.234	1.92	.470	3.89	.521
Male	1.15	.254	1.75	.575	4.25	.624
Female	1.84	.542	2.50	.719	2.66	.760
Congrol Group	.94	.222	1.84	.344	2.52	.448
Male	1.00	.258	1.80	.439	2.33	.433
Female	.75	.479	2.00	.000	3.25	1.49

In general, almost two-thirds (60.78%) of the study participants were raised by both parents with 31.37% of those in the experimental and 29.41% in the control group. A family history of alcoholism was reported by 72% of the total sample. In the experimental group 44% reported a family history of alcoholism and in the control group 28% noted alcoholism in their family.

In both the experimental and the control group 5.88% of the participants were employed at the time they entered treatment. Overall, employment for both groups was 11.76%.

The average number of years of education was 11.58 years for the experimental group with 11.5 years of education for males and 11.83 years for females. In the control group, the average number of years of education was 12.10 with 12.27 years of education for males and 11.50 years for females. Overall, 44% of the participants in both groups had received vocational training with 22% of those individuals vocationally trained in each group. Out of the total sample population, 39.22% of the participants had previous military service. Of the 39.22%, 25.49% of those with previous military service were in the experimental group and 13.73% were in the control group.

In an analysis of the relevant medical data, 31.37% of the total sample population had current medical problems. Of this total, 9.80% of the reported medical problems were from the experimental group and 21.57% from the control group. Additional analysis of the medical data revealed that the average number of times a person in the experimental group received medical attention for an alcohol-related problem was 3.24 with an average of 3.95 for males and 1.00 for females. In the control group the overall average for alcohol-related medical attention was 6.16 with an average of 3.66 for males and 15.5 for females. On the average of 2.73 times experimental group members used other mental health resources: men 3.45 times and females .33 times. Control group participants used other mental health resources an average of .542 times with males using these resources 6.20 times and females 2.50 times.

Experimental group participants had gone through detoxification 7.80 times with 9.31 times for males and 3.00 times for females. In the control group, participants averaged 6.58 times for detoxification

with 5.53 times reported for males and 10.5 times for females. Clients in the experimntal group had been previously treated for alcoholism an average of 2.04 times with previous treatment for males on an average of 2.6 times. Females in this group reported no previous alcoholism treatment. In the control group the average for previous alcoholism treatment was .842 times. Males had received treatment an average of .80 times and females an average of 1 time.

Twenty percent of the study population experienced convulsions while 40% reported hallucinations. Out of the study sample, 28.57% reported having had delirium tremors, and 92.16% noted personality changes (Table 3).

Table 3

SUMMARY DATA BY GROUP ON REPORTED ALCOHOL-RELATED MEDICAL PROBLEMS

	Alcohol-Related Problems	%	Total %
Experimental	Convulsions	8	20
Control	Convulsions	12	
Experimental	Hallucinations	20	40
Control	Hallucinations	20	
Experimental	Delirium Tremors	16.33	28.57
Control	Delirium Tremors	12.24	
Experimental	Personality Changes	52.94	92.16
Control	Personality Changes	39.22	

On other types of problems related to clients' drinking, 88% reported family problems, 80% financial problems, 47% sexual problems, and 70% different health problems. Thirty-two percent reported suicide attempts (Table 4).

Table 4
PERCENTAGES OF PROBLEMS CAUSED BY DRINKING

	Type of Problem	%	Total %
Experimental	Family	48	88
Control	Family	40	
Experimental	Financial	42	80
Control	Financial	38	
Experimental	Sex	22.45	46.94
Control	Sex	24.49	
Experimental	Health	30	70
Control	Health	40	
Experimental	Suicide Attempts	18	32
Control	Suicide Attempts	16	

Males in the experimental group had received an average of 3.40 DWIs and had been in jail an average of 14.6 times. Females in this group had received an average of 1 DWI and had been in jail an average of 1.66 times. Overall the experimental group reported an average of 2.85 DWIs and an average of 11.62 times in jail. In the control group the male participants had been in jail an average of 12.93 times and had an average of 1.53 DWIs. Females had received an average of .250 DWIs and had been in jail an average of 25 times. Cumulatively, the control group had an average of 1.26 DWIs and 15.48 times in jail.

Most participants had their first contact with alcohol, first drinking experience, and first intoxication while still in their

teens. Typically, they experienced their first eye opener and first blackout before age 30. On the average, the first experience of relief drinking and morning tremors occurred in their early 20s. Table 5 is a display of group summary data by sex.

Almost three-fourths (74%) of the study population were daily drinkers (38% of these were in the experimental group and 36% in the control group), while 8% drank weekly (6% of these in the experimental group and 2% in the control group) and 20% drank periodically (12% in the experimental group and 8% in the control group). Further analysis revealed that 39.22% of the members of the experimental group and 27.45% of the control group drank alone (total = 66.67%) while 19.61% of the experimental group and 13.72% of the control group drank in bars (total = 33.33%).

The average amount of alcohol consumed in a 24-hour period was 176.84 ounces and a peak amount of 234.76 ounces for the experimental group. For the control group, the average was 110.94 ounces and a peak amount of 208.59 ounces. Men in the experimental group drank an average of 185.95 ounces with a peak amount of 229.37 ounces while the women drank an average of 148 ounces with a peak amount of 252.66 ounces. In the control group, the men averaged 127.54 ounces with a peak amount of 247.38 ounces while the women drank an average of 57 ounces with a peak of 82.5 ounces of alcohol. The most common alcoholic beverage consumed overall was beer (Table 6). Out of the total sample, 68.47% used other drugs, with marijuana the one most frequently used.

Table 5

EXPERIMENTAL AND CONTROL GROUP MEANS AND STANDARD ERRORS OF MEASUREMENT FOR FIRST DRINKING EVENTS BY SEX

	\bar{x} Age of Contact	SEM	\bar{x} First Drinking Exp.	SEM	\bar{x} First Intoxi- cation	SEM	\bar{x} First Eye Opener	SEM	\bar{x} First Black out	SEM	\bar{x} First Relief Drinking	SEM	\bar{x} First Morning Tremors	SEM
Exp. Group	14.56	1.00	16.26	.940	16.80	1.18	22.36	2.56	26.8	2.56	23.54	2.49	22.88	3.03
Male	14.05	1.09	15.60	1.06	15.9	1.07	20.16	2.11	24.4	2.43	21.3	2.33	19.47	3.18
Female	16.16	2.45	18.50	1.93	20.0	3.64	29.33	8.22	34.8	7.12	31.0	7.13	33.66	6.14
Control Group	14.33	2.09	17.58	1.70	17.39	1.96	22.84	4.07	29.4	3.38	24.7	4.65	23.89	4.08
Male	12.93	1.29	16.40	1.21	16.06	1.51	25.60	4.61	29.2	3.85	26.9	5.24	21.86	4.62
Female	21.33	11.56	22.0	6.98	24.0	9.45	12.50	7.32	30.3	6.88	17.5	10.5	34.00	6.08

Table 6
PERCENTAGES ON TYPES OF ALCOHOLIC BEVERAGES BY SAMPLE
POPULATION, GROUP, AND SEX

	% Beer	% Wine	% Distilled Liquor	% Other Types of Alcohol	% Combination
Total Sample	38.30	10.64	8.51	12.77	29.79
Experimental Group	25.53	10.63	2.13	8.51	10.63
Control Group	12.77	0	6.39	4.26	19.15
Males	29.79	6.38	6.38	10.64	23.40
Females	8.51	4.26	2.13	2.13	6.38

The relevant dental data analyzed included the average number of missing teeth and the frequency of suspicious intraoral and extraoral lesions. These descriptive statistics were assessed for the experimental, staff, and control groups. On the intraoral and extraoral examinations notations were recorded as negative, that is, no abnormality, or suspicious, that is, a possible abnormality. The areas assessed included the lips, buccal vestibule mucosa, retromolar mucosa, hard and soft palate, tonsillar region, tongue and floor of the mouth. An overall appraisal of the patient including the face, skin, and eyes, comprised part of the general survey of the extraoral examination. The external examination also included coordinated palpation of the lips, cheeks, and all major lymph nodes. The temporomandibular joint was examined for tenderness, crepitation, or deviations during movement.

The average number of missing teeth for the experimental group was 8.89 for the staff control group, and for the client group 9.96 missing teeth.

For the experimental and control alcoholic groups the overall frequency of suspicious areas on the lips was 17.46% while the staff showed a frequency of 3.17%. Staff also showed a 3.17% frequency of suspicious areas on the retromolar mucosa while the alcoholic groups had a 33.34% frequency of suspicious areas. For the experimental and control group alcoholics there was a 19.05% frequency of suspicious areas on the right and left buccal vestibule/mucosa. The staff control group had no suspicious areas on these regions. On the hard and soft palate, alcoholics showed a 11.11% frequency of suspicious areas while the non-alcoholic had no noted suspicious areas. Analysis of the data on the tonsillar region showed that for the experimental and control alcoholic groups they had a 9.52% frequency while the staff had none. The tongue and floor of the mouth presented 28.57% of possible abnormalities for the alcoholic groups but none for the staff. In the extraoral examination, the general survey showed a frequency of 6.35% possible anomalies for alcoholics and none for the non-alcoholics. Extraoral palpations yielded 11.11% frequency of possible irregularities for alcoholics while the staff had none (Table 7).

Experimental Statistical Analysis

I conducted a multivariate analysis of covariance on the two dependent measures of oral hygiene--gingival status and plaque level.

Table 7
PERCENTAGES OF INTRAORAL AND EXTRAORAL SUSPICIOUS AREAS BY EXPERIMENTAL,
CONTROL, AND STAFF GROUPS

	% Lips	% Right/Left Buccal Mucosa	% Retromolar Mucosa	% Hard Palate	% Soft Palate	% Tonsillar Region	% Tongue Floor of Mouth	% General Survey	% External Palpation
Exp.	6.35	11.12	14.29	7.94	7.94	7.94	20.63	3.17	6.35
Control	11.11	7.93	19.05	6.35	3.17	1.59	7.94	3.17	4.76
Staff	3.17	0	3.17	0	0	0	0	0	0
Total	20.63	19.05	36.51	14.29	11.11	9.52	28.57	6.35	11.11

One of the main factors was teaching or instruction of two types: no instruction or individual and group instruction. The second factor was fluoride: placebo gel or 0.4% stannous fluoride gel. In all comparisons, staff of the facility served as an additional control group.

In order to adjust the basal dependent scores, I conducted the covariance analysis (Tables 8 and 9). The pregingival and preplaque scores were the covariates used in the analysis. Only pregingival scores accounted for a significant amount of the variance. The Wilks' criterion exact $F = 12.61$, $df = 2,54$, $p < .05$. Preplaque scores approached significance with $F = 3.30$, $df = 2,54$, $p = .0566$; therefore, they were included in the analysis. A multivariate analysis of variance was required because I obtained two dependent scores (gingival and plaque) for each subject and the scores were thus related and not independent measures.

Table 8

UNADJUSTED MEANS AND STANDARD ERRORS OF PREGINGIVAL AND
PREPLAQUE COVARIATE SCORES

	Mean	Standard Error	N
<u>Pregingival</u>			
Group 1 (Exp)	2.46	.099	26
Group 2 (Staff)	2.19	.0224	14
Group 3 (Control)	2.79	.071	23
<u>Preplaque</u>			
Group 1 (Exp)	2.61	.062	26
Group 2 (Staff)	1.97	.239	14
Group 3 (Control)	2.70	.091	23

Table 9
ADJUSTED LEAST SQUARES MEANS FOR POSTGINGIVAL AND
POSTPLAQUE DEPENDENT SCORES

	Postgingival	\bar{x}	Postplaque	\bar{x}
<u>Type of Group</u>				
Group 1 (Exp)	2.24		1.65	
Group 2 (Staff)	2.29		1.30	
Group 3 (Control)	2.57		2.67	
<u>Type of Gel</u>				
Fluoride	2.29		1.84	
Placebo	2.44		1.91	

An examination of the results of the multivariate covariate analysis revealed a single significant main effect due to the presence or absence of instruction on both dependent measures. The analysis yielded Wilks' criterion exact $F = 11.47$, $df = 4, 108$, $p < .05$.

The effect of fluoride was not significant with Wilks' criterion exact $F = 1.76$, $df = 2, 54$, $p = .18$, and there was no significant interaction of fluoride with instruction or no instruction with $F = .26$, $df = 4, 108$, $p = .90$ (Table 10).

A univariate analysis of the raw scores of the postgingival index revealed a significant effect. The analysis yielded Wilks' criterion exact $F = 6.66$, $df = 2, 56$, $p < .05$. Similarly, postplaque scores were significant for type of instruction, that is, instruction or no instruction. According to Wilks' criterion exact $F = 25.44$,

$df = 2,55$, $p = .05$. Examination of the univariate statistics revealed no significance for the two levels of fluoride on the postgingival index with Wilks' criterion exact $F = 3.05$, $df = 1,55$, $p = .0863$. There was also no significance for the two levels of fluoride and the postplaque index. The Wilks' criterion exact $F = .23$, $df = 1,55$, $p = .6314$ (Table 11).

Table 10
MULTIVARIATE ANALYSIS OF COVARIANCE

Source	df	F	p
Group	4,108	11.47	.0001
Fluoride	2,54	1.76	.183
Groups X Fluoride	4,108	.26	.901
Pregingival	2,54	12.16	.0001
Preplaque	2,54	3.03	.0566

Table 11
UNIVARIATE ANALYSIS OF COVARIANCE

Source	df	SS	F	p
<u>Postgingival</u>				
Group	2	1.27	6.66	.002
Fluoride	1	.29	3.05	.086
Group X Fluoride	2	.05	.27	.76
Pregingival	1	1.45	15.31	.0003
Preplaque	1	.47	4.93	.030
<u>Postplaque</u>				
Group	2	16.56	25.44	.0001
Fluoride	1	.075	.23	.63
Group X Fluoride	2	.134	.21	.81
Pregingival	1	.002	.01	.94
Preplaque	1	.620	4.98	.029

The standard errors and least squares adjusted means of the fluoride groups are shown in Table 12.

Table 12

STANDARD ERRORS AND LEAST SQUARES ADJUSTED MEANS FOR POSTGINGIVAL
AND POSTPLAQUE INDICES BY FLUORIDE GROUPS

	Adjusted Means	Standard Error	Adjusted Means	Standard Error
	<u>Postgingival</u>		<u>Postplaque</u>	
Exp. X Fluoride	2.20	.152	1.70	.221
Exp. X Placebo	2.28	.153	1.63	.211
Staff X Fluoride	2.17	.224	1.25	.227
Staff X Placebo	2.41	.079	1.35	.207
Control X Fluoride	2.51	.083	2.60	.114
Control X Placebo	2.63	.087	2.75	.093

Figure 1 depicts the means of the type of gel by both dependent measures--postgingival and postplaque. The means of the type of instruction, individual and group instruction or no instruction, by both dependent measures are shown in Figure 2. As the figures show, staff had the lowest scores on the postgingival and postplaque indices (low scores indicate good oral status). With high scores as an indication of poor oral status, the non-instruction control group had the highest scores on both dependent measures, and the instructed experimental group had intermediate scores.

I used Tukey's Studentized Range (HSD) test to compare the three means for the postgingival and postplaque scores for instruction. Contrasting the no-instruction group and the experimental instruction group revealed a significant difference for postgingival and postplaque

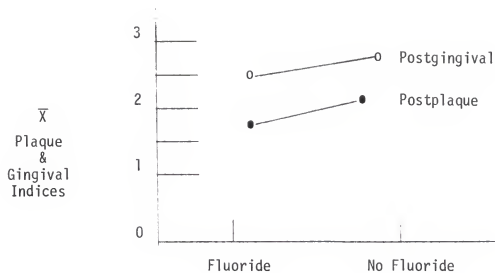


Figure 1. Means of the Type of Gel of the Postgingival and Postplaque Measures

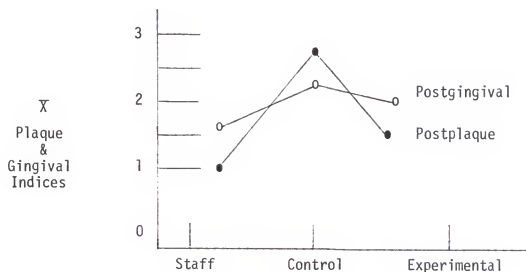


Figure 2. Means of the Type of Instruction of the Postgingival and Postplaque Measures

scores. Similarly, differences between the no-instruction group and the staff control group, and the experimental instruction group versus the staff control group, were also significant. Table 13 shows the results of the multiple comparisons of these postgingival and postplaque scores.

Table 13

MULTIPLE COMPARISONS OF POSTGINGIVAL AND POSTPLAQUE MEASURES, MEAN DIFFERENCES, CONFIDENCE INTERVALS, AND SIGNIFICANCE BY TUKEY'S STUDENTIZED RANGE (HSD) TEST

Groups	df	Lower Confidence Interval	Difference Between Means	Upper Confidence Level	p
<u>Postgingival</u>					
Control X Exp.	55	.294	.506	.719	.05
Control X Staff	55	.525	.777	.029	.05
Exp. X Staff	55	.024	.270	.317	.05
<u>Postplaque</u>					
Control X Exp.	55	.675	1.07	1.47	.05
Control X Staff	55	1.29	1.76	2.22	.05
Exp. X Staff	55	.231	.690	1.14	.05

Because of the unexpected lack of significance found for fluoride, I conducted post-hoc t tests (Table 14). The post-hoc t tests revealed a significant fluoride effect for staff for the postgingival measure with $t = -3.67$, $df = 8.7$, $p < .05$. Although postplaque scores for staff approached significance with $t = -2.20$, $df = 11.9$, $p = .06$, the other comparisons were not significant.

Table 14
 POST-HOC COMPARISONS OF FLUORIDE GROUPS FOR
 POSTGINGIVAL AND POSTPLAQUE MEASURES

Group	Type of Gel	<u>df</u>	<u>t</u>	<u>p</u>
<u>Postgingival</u>				
Experimental	Fluoride	23.0	.060	.95
	Placebo			
Staff	Fluoride	8.70	-3.67	.006
	Placebo			
Control	Fluoride	20.8	-5.25	.61
	Placebo			
<u>Postplaque</u>				
Experimental	Fluoride	23.6	.243	.81
	Placebo			
Staff	Fluoride	11.7	-2.02	.06
	Placebo			
Control	Fluoride	18.8	-.523	.61
	Placebo			

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

Alcoholism affects all dimensions of health. Since it adversely affects the psychological makeup of the individual, evidence of low self-esteem and low self-concept is evident in most alcoholics. Additionally, the physical effects of alcoholism are evident in the oral cavity as well as the head and neck regions of afflicted individuals. Maximizing social and self-help skills is part of the rehabilitation services provided by publicly funded alcoholism treatment facilities. Personal care as well as educational and motivational therapy is also part of the treatment regime.

Dental researchers and clinicians advocate the removal of bacterial plaque in order to reduce or prevent gingivitis, periodontitis and dental caries. While researchers and clinicians have effectively used fluoride to reduce carious lesions, many dental researchers today also attest to its effectiveness in reducing the plaque that causes gingivitis and periodontal disease.

Investigators have studied dental health educational programs in a variety of settings, but the literature contains no information on a dental education program in an alcoholism treatment facility. One of the basic tenets of a dental instructional program is motivation.

Through patient motivation behavioral change in dental health habits is achieved. The dental practitioner must provide the patient with the necessary tools for proper oral hygiene, and in order to provide the appropriate oral physiotherapy aids and a relevant program of instruction, must assess individual needs and ability.

Using case studies is one means of making a comprehensive analysis of the status of a group of individuals living within the same environment. This approach can allow the researcher to develop better rapport with individuals being studied. This, in turn, can allow the researcher to gain trust and confidence as well as establish the personal credibility necessary for motivating alcoholics in a dental health educational program to improve their oral health status.

I undertook this investigation to determine whether any type of dental health instruction, or self-administered fluoride, or combination of the two, could bring about change over a short period of time in oral health of non-alcoholics and alcoholics in a residential treatment facility. I had three purposes for the research: to compare the oral health status of alcoholics and non-alcoholics, to evaluate the success of a dental health instructional program in reducing plaque levels and improving a gingival status, and to test the effectiveness of self-administered stannous fluoride gel as an adjunctive antiplaque agent. I tested the effectiveness of dental health instruction with one group of alcoholics receiving a combination of one-to-one and group instruction and a comparable group serving as control. A group of non-alcoholics also received instruction and served as a control for alcoholism. Staff members randomly assigned fluoride and a placebo gel to members of the three groups, using a

double-blind approach. I measured participants' oral health status before and after implementation of the treatment program through data collected on two dependent measures, a gingival and a plaque index. I tested the program through a non-equivalent control group design modified by using a second control group. I used a completely randomized design to investigate the fluoride treatment variable. Statistical analysis procedures included a multivariate analysis of covariance, Tukey's Studentized Range (HSD) test, and post-hoc t tests to test the null hypotheses. I used means and percentages of the descriptive data from client records and the case studies on the experimental group to explore the relevance of this type of study specifically with an alcoholic population.

The naturalistic setting of a publicly funded 50-bed inpatient alcoholism treatment facility did not allow for a pure experimental design but did provide conditions similar to the situation to which the study results would be generalized. By its very nature the treatment setting provides an innovative and ever-challenging environment for both quantitative and qualitative research. Conducting field work within the confines of a domiciliary alcoholism treatment facility requires an extensive cooperative effort, and necessitates adherence to confidentiality regulations and a protocol of other procedures and approvals. The daily case log of the dental study is presented in Appendix Q to ensure that others considering replication of this study will understand some of the complexities.

The total study population consisted of 70 individuals, 15 non-alcoholics, and 55 alcoholics. Clients in the alcoholism treatment

facility are classified into one of two categories--minimal residential or chronic alcoholic, and residential or acute alcoholic. The experimental group contained 18 chronic and 10 acute alcoholics. The control group included 13 chronic and 14 acute alcoholics. The staff control group was comprised of 15 employees of the treatment facility, four of whom were recovering alcoholics. Two chronic alcoholics in the experimental group left treatment against medical advice (AMA) prior to completion of the study. This left 26 in the experimental group. Two chronic and two acute alcoholics in the control group left treatment AMA; thus 23 completed the study. One recovering alcoholic staff member was transferred; therefore, 14 employees finished the program. After attrition occurred in the three groups, the total study sample was composed of 63 participants--43 alcoholics and 14 staff members.

The descriptive statistics revealed that at the time of this study, the average alcoholic client could be characterized as a 39-year-old Caucasian male, 5 feet, 7 inches tall, and weighing approximately 164 pounds.

The total sample population contained 78% males and 82% whites. More than half of the residents in the study were classified as chronic alcoholics and 40% of these were male clients.

On the average, the clients had been married more than one time and had at least one child. More than 60% of the study participants were raised by both parents and had three siblings. Some 72% of the total sample reported a family history of alcoholism.

Typically, the residents had not completed the 11th grade; however, almost half had received vocational training. At the time they were admitted to the treatment facility, fewer than 12% of the clients were employed.

A review of the counselors' clinical impressions of the clients' levels of functioning revealed that almost one-third had below average judgment and insight and more than half had a possibility of depression. A poor self-image was recorded for three-fourths of the clients and a fair self-image was noted for 20% of the alcoholics.

In a review of the relevant medical data, more than 30% of the sample reported current medical problems with 4.7 reported as the average number of times clients had sought alcohol-related medical attention. They had used mental health resources an average of four times.

Clients averaged seven admissions for detoxification and 1.5 times for previous alcoholism treatment. Twenty percent of the study population experienced alcohol-related convulsions while 40% reported hallucinations. Out of this same sample, 28.57% reported they had experienced delirium tremors and 92.16% noted personality changes.

Finally, more than 70% reported financial and health problems and 47% reported sexual problems. Approximately 32% of the residents had attempted suicide at least one time.

The clients in this study had received an average of two DWIs and had been in jail 14 times for alcohol-related incidents.

On the average, the first drinking events occurred at a younger age for males than for females. Out of the study population, 74% were daily drinkers and 67% drank alone.

The average amount of alcohol residents consumed in a 24-hour period was 144 ounces and a peak amount of 222 ounces. Beer was the most common alcoholic beverage they were most likely to consume. More than 65% of the total sample used other drugs, most typically marijuana.

A review of relevant dental data revealed that on the average alcoholics were missing more teeth than the non-alcoholics and had a higher frequency of suspicious intra- and extraoral areas.

I measured participants' oral health status, both before and after implementation of the treatment programs, through data on two variables: scores from a Gingival Index and scores from a Plaque Index. Since I am a licensed dental hygienist, I recorded all the scores. I used the Pearson correlation coefficient to test for both intra- and intra-examiner reliability. A Plaque Index correlation of $r = .98$ and a Gingival Index correlation value of $r = .97$ emerged for intra-examiner reliability. I tested inter-examiner reliability with the assistance of another licensed dental hygienist and again used the Pearson correlation coefficient to establish reliability. The Gingival Index correlation value was $r = .95$ and the Plaque Index yielded a correlation value of $r = .98$, thus establishing inter-examiner reliability.

In all experimental studies, the experimental and control groups are considered equivalent on the dependent measures prior to the manipulation of the independent variables. Randomization and matching are typically used to meet this assumption of equivalency. Unfortunately, matching poses problems, especially with small groups, and randomization does not always result in equivalent groups.

However, the analysis of covariance adjusts the basal scores of each individual in the group to equivalence, thus achieving statistically what is desired, but not obtainable realistically by the experimental manipulation.

I used the pregingival and preplaque scores as covariates in the analysis. Only the pregingival scores accounted for a significant amount of the variance. The Wilks' Criterion exact F yielded 12.16, $df = 2, 54$, $p < .05$. The preplaque scores approached significance with $F = 3.03$, $df = 2, 54$, $p = .0566$; therefore, I included them in the analysis. A multivariate analysis of covariance was required because the two dependent scores (gingival and plaque) were obtained for each subject and the scores were thus related and not independent measures.

I conducted a multivariate analysis of covariance on the two dependent measures of oral hygiene: gingival status, and plaque level. One of the main factors was presence or absence of instruction. The second factor was fluoride, specifically placebo gel or 0.4% stannous fluoride gel. In all comparisons, staff of the facility were included as an additional control group.

The results of the multivariate analysis of covariance revealed a single significant main effect due to the presence of instruction on both dependent measures. The analysis yielded Wilks' Criterion exact $F = 11.47$, $df = 4, 108$, $p < .05$.

The fluoride effect was not significant with Wilks' Criterion $F = 1.76$, $df = 2, 54$, $p = .8$, and there were no significant interaction of fluoride with instruction or no instruction with $F = .26$, $df = 4, 108$, $p = .90$.

A univariate analysis of the raw scores of the postgingival and postplaque indices revealed a significant effect for instruction. Analysis of the postgingival scores yielded Wilks' Criterion exact $F = 6.66$, $df = 2,55$, $p < .05$. The postplaque scores provided a Wilks' Criterion exact $F = 25.44$, $df = 2,55$, $p < .05$.

In examining the fluoride factor, the univariate analysis on scores on both the postgingival index and the postplaque index yielded no significance on either level of gel, fluoride or placebo.

In comparing postgingival and postplaque means on instruction, staff had the best oral status with a \bar{x} of 1.97 on the postgingival index and a $\bar{x} = 1.02$ on the postplaque index. The experimental group had intermediate scores with a postgingival $\bar{x} = 2.25$ and a postplaque $\bar{x} = 1.71$. The poorest oral status was noted for the no-instruction control group alcoholic, with a postgingival $\bar{x} = 2.75$ and a postplaque $\bar{x} = 2.77$.

I used Tukey's Studentized Range (HSD) test to compare the means for the postgingival and postplaque scores for presence or absence of instruction. These planned comparisons of the means of the group revealed that all of the significant differences were due to the instruction effect. Fluoride did not significantly affect the postgingival or postplaque scores.

Because of the unexpected lack of significance found for fluoride, I conducted post-hoc t tests. These tests did reveal a significant fluoride effect for staff on the postgingival measure with $t = -3.67$, $df = 8.7$, $p = .006$. Although the postplaque scores for staff also approached significance, with $t = -2.02$, $df = 11.9$, $p = .06$, the other comparisons were not significant. The lack of

significance for all other fluoride comparisons, and a lack of significant F for the univariate and multivariate analyses, strongly implies that the post-hoc significant difference is due to unstable variability in the sample. In addition, the groups were covaried to account for basal differences, and thus it appears that the fluoride result of significance in the post-hoc t test is a statistical fluke.

Conclusions

This study supports the findings of other research reported in the literature that alcoholism affects all dimensions of health. Of the 51 clients' psychosocial, personal, medical, and dental records I reviewed, 31.37% reported current medical problems with an average number of 4.7 times for seeking alcohol-related medical attention. Additionally, 70% reported other health problems as a direct result of drinking. This study also supports other research findings that alcoholism so adversely affects the psychological makeup of the individual that evidence of low self-esteem and poor self-concept are prominent in most alcoholics. Psychosocial data revealed that three-fourths of the study sample portrayed a poor self-concept and 20% demonstrated a fair level of self-concept. Additionally, more than half of the alcoholic residents gave a clinical picture of possible depression. One-third indicated they had attempted suicide on at least one occasion, and more than 92% noted personality changes while drinking.

Additionally, the study supports the following previous research findings: the physical effects of alcoholism are

manifested in the oral cavity, and in the head and neck regions of alcoholics; heavy drinking and the use of tobacco products are concomitantly associated; and long-term dental neglect of the dentition is one of the problems associated with chronic alcoholism. Analysis of the dental data revealed that the alcoholics in this study had their last dental visit 4 years ago with the reason most often cited for this dental visit as the need for a tooth extraction. Alcoholics were missing an average of 9.4 teeth as compared with non-alcoholics who were missing an average of 5.9 teeth. Out of the sample population, only two alcoholics were non-smokers. On ever surface examined, the frequency of intraoral and extraoral suspicious areas was considerably higher among the alcoholics.

Since qualitative methods can assist the researcher in gathering information that cannot be generated by quantitative methods alone, this field study component supports the conclusion that using qualitative approaches can generate relevant data.

This study supports findings of other research reported in the literature that a relevant program of instruction must meet individual needs and abilities, that dental patients must be provided with the appropriate oral physiotherapy aids, and that patient motivation is necessary to achieve behavioral change in oral hygiene habits. A multivariate analysis on two dependent measures of oral hygiene, gingival status and plaque level, demonstrated that instruction designed to meet the needs of the learner was significant at the .05 level.

The use of stannous fluoride to effectively reduce the plaque that causes gingivitis and periodontal disease is also well

documented in other research reported in the literature; however, this study did not support the conclusions that 0.4% stannous fluoride gel was an effective adjunctive antiplaque agent. The fluoride effect was not significant as demonstrated by a multivariate MANOVA which yielded an $F = 1.76$, $df = 2, 54$, $p = .18$. Also, no significant interaction of fluoride with presence or absence of instruction occurred, with $F = .26$, $df = 4, 108$, $p = .90$.

I initiated this investigation to test the following hypotheses:

For experimental and control groups

1. The preassessment and postassessment levels of oral health will not differ for alcoholics and non-alcoholics.

After 3 weeks staff will have no significant change in oral health status if they receive

2. Fluoride with dental instruction.

3. No fluoride with dental instruction.

After 3 weeks residents will have no significant change in oral health status if they receive

4. Fluoride with dental instruction.

5. No fluoride with dental instruction.

6. Fluoride and no dental instruction.

7. No fluoride and no dental instruction.

Within the constraints of this study the first hypothesis was rejected. The pretreatment mean scores on two dependent measures, the Gingival Index and the Plaque Index, were analyzed for experimental, staff, and control groups. With low scores on

the indices indicating good oral status, staff had the lowest scores on both the pregingival index, $\bar{x} = 2.19$ and the preplaque index, $\bar{x} = 1.97$. The experimental group had intermediate scores on both the indices with a pregingival $\bar{x} = 2.46$ and a preplaque $\bar{x} = 2.61$. The control group had the highest scores on both dependent measures with a pregingival $\bar{x} = 2.79$ and a preplaque $\bar{x} = 2.70$.

Findings indicated that a combined individual and group dental health instruction program was an effective way to teach domiciliary alcoholics and non-alcoholic staff members the necessary skills to improve their oral health status. A statistical analysis of pretreatment and posttreatment means in an experimental and control group situation showed a significant difference between both the Gingival Index and Plaque Index means of the posttreatment experimental group and each of the other groups. Mean differences were statistically significant at the .05 level in favor of the posttreatment experimental group and the posttreatment staff control group when contrasted with the pretreatment experimental and staff control and the pre- and post-treatment control group. Based on these results, hypotheses 3 and 5 were rejected. This study also supported the conclusion that within the scope of the study and the type of treatment setting the instruction program had a significant positive effect on motivating alcoholics and non-alcoholics over a short period of time to perform oral hygiene techniques.

As a result of this study, I was not able to conclude that self-administered 0.4% stannous fluoride gel used alone or in

combination with instruction would be an effective antiplaque agent; therefore, hypotheses 2, 4, 6, and 7 were retained. The post-hoc t tests revealed a significant difference in gingival and plaque levels due to fluoride only in the staff group. The difference was not significant in the multivariate analysis of covariance. In other words, premanipulation differences existed in the fluoride and placebo groups within the staff group. Correcting for this difference by adjusting the baseline scores eliminated the significance.

The data summarized from the personal, medical, dental histories, psychosocial, dental, clinical notes, and the daily case log of the dental study indicated that dental neglect and dental diseases do exist in alcoholics and the need for dental health instruction for individuals being treated for alcoholism will continue. Furthermore, oral hygiene is an important component of restoring total health to alcoholics. This field study in a naturalistic setting also demonstrated that interactive participation is achievable as was evidenced by the cooperative effort of the alcoholic residents and all the treatment facility employees. It is not possible to draw further clear conclusions from this qualitative information, but the data provided support to the conclusions that dental health assessment and education are cost-effective measures that can be included in a publicly funded residential treatment setting for alcoholics.

Recommendations

A follow-up survey of the study population would be valuable in providing data on long-term (that is, one year or more) outcome measures of dental intervention on a residential alcoholism treatment facility. Outcome measures of particular interest and relevance may include: (a) appropriate, periodic oral disease and/or oral health status measures; (b) periodic measures related to rates of, and changes in, utilization of dental providers' professional services; (c) measures of change in health-relevant behaviors, values, and attitudes; (d) measures defining the characteristics, such as social economic status, education, or disease experience, of alcoholic subgroups responding differentially to dental interventions encountered while in treatment; and (e) measures providing some indication of the acceptability of the behavioral interventions to the alcoholic, the treatment facility administration, and dental practitioner groups.

This research clearly establishes that behavioral interventions directed toward improving the detection and prevention of selected major oral diseases (dental caries, periodontal disease, and oral cancers) in adult alcoholics is effective; therefore, this type of dental intervention program is possible in other settings with targeted adult populations. Due to the large number of employed adults, the worksite could provide a setting within which a relatively diverse, wide cross-section of the population is accessible and can be studied over time. Periodic health screening or prevention-related interventions are feasible in this setting,

as are repeated measures of health status or health-related behaviors. Furthermore, this intervention model could be used in existing employee health, employee assistance (EAP or alcohol/drug counseling), or other work-related programs.

This study also establishes the need to investigate the possible benefits of dental health assessment as an additional component in alcoholism diagnosis. This type of oral screening and assessment is not limited to a publicly funded alcoholism treatment facility. Therefore, possible research efforts could be directed to both private treatment centers and hospital-based alcohol/drug programs.

This study leaves unanswered the question of the effect of empathy or lack of empathy in teaching oral hygiene skills to alcoholic clients. It also does not answer the question on which style of instruction, individual or group, is the more effective method of teaching oral hygiene skills to alcoholics. Additionally, this study leaves unanswered the question of instructor effect on the alcoholics' motivation and self-perception.

The conclusion of positive treatment effect within the study situation and sample population leads me to recommend replication of a like or similar investigation. The beneficial nature of this study lends support to the recommendation of replication in that costs are minimal and the treatment is both health enhancing and health promoting. Replication would allow an investigator to draw stronger conclusions about the treatment effect on dental instruction and further investigate the possibility of self-administered stannous fluoride gel as an adjunctive antiplaque agent.

The following recommendations are made with regard to changes in the treatment model used in this study:

1. Use a dental auxiliary to explain the purpose and scope of the dental intervention program.

2. Introduce the program and conduct the dental assessments on alcoholic clients when they enter treatment.

3. Establish the dental program as an employee benefit in an effort to encourage more staff participation.

4. Complete an oral prophylaxis and complete mouth series of X-rays on all program participants who have not had a dental examination within the past year.

5. Reduce the amount of weekly instructional time, but expand the instruction program over the client's entire stay in the treatment facility.

6. Provide for some type of monitoring system on the participants' self-administration of the fluoride gel.

7. Incorporate both a nutritional analysis and nutrition education as additional measures of health status.

8. Develop guidelines for the evaluation of measures of self-esteem and motivation.

Again, the conclusions of this study revealed a significant difference in both the gingival and plaque indices due to fluoride only in the staff group; however, the difference was not significant in the multivariate analysis of covariance. Premanipulation differences existed in the fluoride and placebo groups within the staff group, but correcting for this difference by adjusting the basal scores eliminated the significance. Thus, as a final

recommendation, future investigators should use either a matching design to control for baseline differences or an analysis of covariance as in this study.

APPENDIX A
INFORMED CONSENT FORM

INFORMED CONSENT

Subject's Name _____ Protocol # _____

Project Title: Dental Health Evaluation and Instruction in Oral Hygiene for Alcoholics: A Quantitative and Qualitative Study

1. The purpose of this study is to investigate the effects of dental health instruction, the application of fluoride, or both in improving the oral health of alcoholics. You do not have to participate in the study and you may withdraw at any time without penalty.
2. At the beginning of the study I will ask questions about your general health and your dental health. Next I will examine your mouth to determine your dental condition. After the dental assessment, you will receive a container of gel. Some of the containers have fluoride, a substance that can reduce the bacteria that cause gum disease and cavities. The gels are different in color but the same in taste. The container will be labeled with your name and you are asked not to exchange or share this gel. You will then be assigned to one of two groups. I will give dental instruction to one group 4 times a week for 3 weeks. I will do the instruction for both small groups and individuals. I will not give any instruction to the other group for 3 weeks. I will examine your mouth again at the end of each 3-week interval, or before you leave the program if this occurs sooner.

At the end of the study, I will give fluoride gel to those individuals who received containers with no fluoride and individual dental instruction to those individuals who did not receive instruction earlier.

3. You will not experience discomforts or risks as a result of participation.
4. The benefits to you should be an increase in dental hygiene skills and an improvement in oral health.
5. You will receive no money for being in this study; however, you will receive free fluoride, toothbrushes, dental floss and other dental aids.
6. All information gathered will be kept in confidence and will be protected to the full extent provided by law.

I have fully explained to _____ the nature and purpose of the above described procedure and the risks that are involved in its performance. I have answered and will answer all questions to the best of my ability.

Questions:

Answers:

Participant's Signature

Date

APPENDIX B

PERSONAL, MEDICAL, AND DENTAL HISTORY

PERSONAL, MEDICAL, AND DENTAL HISTORY

NAME _____
 Last First Middle Address _____

 _____ Phone _____
 City State Zip Home Business _____
 DATE OF BIRTH _____ SEX _____ HEIGHT _____ WEIGHT _____
 OCCUPATION _____ PLACE OF EMPLOYMENT _____
 If you are completing this form for another person, what is your
 relationship to that person? _____ Person
 to be contacted in case of emergency: Name _____
 Phone _____ Relationship to person _____

In the following questions, circle yes or no, whichever applies. Your answers are for our records only and will be considered confidential.

1. Do you feel that you are in good health? yes no
2. Has there been any change in your general health
 within the past year? yes no
3. Your last physical examination was on _____
4. Are you now under the care of a physician? yes no
 If so, what is the condition being treated? _____
5. The name and address of your physician is _____
6. Have you had any serious illness or operation? yes no
 If so, what was the illness or operation? _____
7. Have you been hospitalized or had a serious illness
 within the past five (5) years? yes no
 If so, what was the problem? _____
8. Do you have or have you had any of the following diseases or
 problems?
 - a. Rheumatic fever or rheumatic heart disease. yes no
 - b. Congenital heart lesions. yes no
 - c. Cardiovascular disease (heart trouble, heart attack,
 coronary insufficiency, coronary occlusion, high
 blood pressure, arteriosclerosis, stroke) yes no

1. Do you have pain in chest upon exertion? yes no
2. Are you ever short of breath after mild exercise? . yes no
3. Do your ankles swell? yes no
4. Do you get short of breath when you lie down,
or do you require extra pillows when you sleep? . . yes no
5. Do you have a cardiac pacemaker? yes no

- d. Sinus trouble yes no
- e. Asthma or hay fever yes no
- f. Hives or a skin rash yes no
- g. Fainting spells or seizures yes no
- h. Diabetes yes no

1. Do you urinate (pass water) more than six
times a day? yes no
2. Are you thirsty much of the time? yes no
3. Does your mouth frequently become dry? yes no

- i. Hepatitis, jaundice, or liver disease yes no
- j. Arthritis yes no
- k. Stomach ulcers yes no
- l. Inflammatory rheumatism (painful swollen joints). . . yes no
- m. Kidney trouble yes no
- n. Lung disorders (tuberculosis, emphysema). yes no
- o. Do you have a persistent cough or cough up blood? . . yes no
- p. Low blood pressure yes no
- q. Venereal disease (Syphilis, Gonorrhea, Herpes). . . . yes no
- r. Oral herpes (canker sores or blisters). yes no
- s. Other _____

9. Have you had abnormal bleeding associated with previous
extractions, surgery or trauma? yes no
- a. Do you bruise easily? yes no
- b. Have you ever required a blood transfusion? yes no
- c. If so, explain the circumstances. _____

10. Do you have any blood disorders such as anemia? yes no
11. Have you had surgery or X-ray treatment for a tumor,
growth or other condition of your head or neck? yes no
12. Are you taking any of the following:
- a. Antibiotics or sulfa drugs yes no
- b. Anticoagulants (blood thinners) yes no
- c. Medicine for high blood pressure yes no
- d. Cortisone (steroids) yes no
- e. Tranquilizers yes no
- f. Antihistamines yes no
- g. Aspirin yes no
- h. Insulin, tolbutamide (Orinase) or similar drug yes no
- i. Digitalis or drugs for heart trouble yes no
- j. Nitroglycerin yes no
- k. Oral contraceptive or other hormonal therapy yes no
- l. Pillolin yes no

13. Are you taking any other drug or medicine? yes no
If so, what? _____
14. Are you allergic or have you reacted adversely to one of these:
- a. Local anesthetic. yes no
 - b. Penicillin or other antibiotics yes no
 - c. Sulfa drugs yes no
 - d. Barbiturates, sedatives, or sleeping pills. yes no
 - e. Aspirin yes no
 - f. Iodine. yes no
 - g. Codeine or other narcotics. yes no
 - h. Other _____
15. Do you have any disease, condition, or problem not listed above that you think I should know about? yes no
If so, explain _____
16. Are you employed in any situation which exposes you regularly to X-rays or other ionizing radiation? yes no
17. Are you wearing contact lenses? yes no
18. Are you on a prescribed diet? yes no

WOMEN

19. Are you pregnant? yes no
20. Do you have any problems associated with your menstrual period? yes no

Signature of patient or guardian

Date

COMMENTS

DENTAL HEALTH

Reason for visit: _____

When was your last dental visit? _____ Date of X-rays _____

Have you ever had any serious problems associated with previous dental treatment? yes no

If so, explain _____

Have you ever been treated for a disease in the mouth? yes no

How often do you brush your teeth? _____

What texture brush do you use? SOFT _____ MEDIUM _____ HARD _____
NATURAL _____ NYLON _____

How often do you floss? _____

Do your gums bleed while brushing? yes no

Do your gums bleed while flossing? yes no

Do you avoid brushing any part of your mouth because of pain? . yes no

If yes, what part? _____

Do you feel twinges of pain when your teeth come in contact with:

- a. Hot foods or liquids, i.e., soups, coffee, tea, etc. yes no
- b. Cold foods or liquids, i.e., ice cream, cold fruit, etc. yes no
- c. Sweets, i.e., candy, fruit, sweet desserts, etc. yes no
- d. Sours, i.e., lemons, limes, grapefruit, etc. yes no

Do you feel pain on any of your teeth when brushing or flossing? yes no

Do you chew on only one side of your mouth? yes no

If yes, explain _____

Do your gums feel tender or swollen? yes no

Do you clench or grind your jaws while sleeping or during the day? yes no

Do your jaws ever feel tired? yes no

Do you wear dentures (fixed or removable)? yes no

Do you usually have many cavities? yes no

Do you lose fillings or break fillings? yes no

Do you gag easily? yes no

Are you familiar with the term "preventive dentistry"? yes no

Have you ever had topical applications of fluoride? yes no
 Circle those that apply:

Bit cheeks, tongue, lips, fingernails
 Sucks fingers, tongue, thumb
 Breathes through mouth; thrusts tongue

Do you smoke? yes no

If yes, how many cigarettes, cigars, etc. do you smoke daily? _____

Please add anything you feel is important: _____

NAME OF DENTIST _____

NUTRITIONAL HISTORY

How many meats do you have per day? 1 2 3

Meals you most frequently miss: _____

How many snacks do you have per day? _____ What? _____

SERVING PER MEAL:	MEAT & FISH	MILK & MILK PRODUCTS	FRUIT & VEGETABLE	BREADS & CHEESES
BREAKFAST				
LUNCH				
DINNER				

Do you take vitamins? Yes _____ No _____ What kind? _____

APPENDIX C

COMPONENTS OF THE DENTAL CHART

ORAL INSPECTION

PATIENT NAME _____

INITIAL ASSESSMENT DATE _____ FINAL ASSESSMENT DATE _____

INTRAORAL EXAM

	Positive	Negative	Suspicious
1. LIPS			
2. BUCCAL VESTIBULE/BUCCAL MUCOSA RIGHT: LEFT:			
3. RETROMOLAR AREA RIGHT: LEFT:			
4. PALATE HARD: SOFT:			
5. TONSILLAR REGION			
6. FLOOR OF MOUTH/TONGUE			

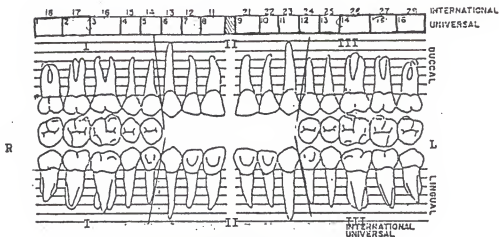
EXTRAORAL EXAM

1. GENERAL SURVEY:

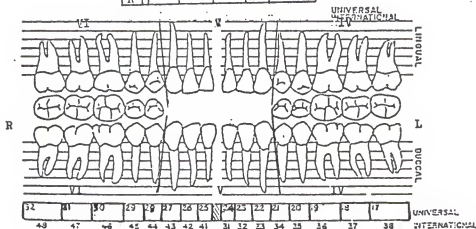
2. EXTERNAL PALPATION:

PATIENT NAME _____ ORIGINAL DATE _____

PERIODONTAL AND DENTAL CHART



Gingival Index			
Upper	1	2	3
Lower	4	5	6



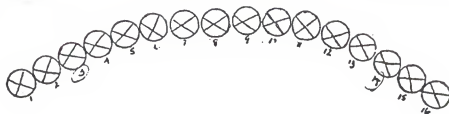
KEY:

- CALCULUS - GREEN
- PLAQUE/DEBRIS - RED
- STAIN - BLACK
- TRAUMA/LACERATIONS - PURPLE
- GINGIVAL INDEX - BLUE

FLAQUE CONTROL RECORD

Previous Index _____

____ Present Index

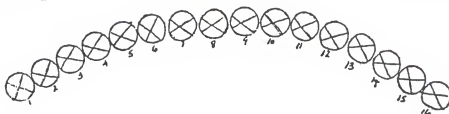


Patient Name _____ Date _____

FLAQUE CONTROL RECORD

Previous Index _____

____ Present Index



Patient Name _____ Date _____

DATE _____

SERVICES AND/OR TYPE OF INSTRUCTION RENDERED

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

APPENDIX D
ORAL CANCER PROCEDURES

ORAL CANCER PROCEDURES*

II. Order of Examination

A recommended order for examination is outlined in table 8-1, in which factors to consider during appointments are related to the actual observations made and recorded. The sequence presented in table 8-1 is adapted from the *Oral Cancer Examination Procedure* available from the American Cancer Society.²

A. Systematic Sequence for Examination

The advantages of following a routine order for examination include:

1. Minimal possibility of overlooking an area and missing details of importance.
2. Increased efficiency and conservation of time.
3. Maintenance of a professional atmosphere which will inspire the patient's confidence.

B. Steps for Thorough Examination (table 8-1)

1. Observe patient during reception and seating to note physical characteristics and abnormalities, and make an overall appraisal.
2. Observe head, face, eyes, and neck, and evaluate the skin of the face and neck.
3. Palpate the salivary glands and lymph nodes.
4. Examine mandibular movement and palpate the temporomandibular joint.
5. Make a preliminary examination of the lips and intraoral mucosa, using a mouth mirror or a tongue depressor. Do not retract directly with ungloved fingers in the event of an open lesion which may be communicable.
6. View and palpate lips, labial and buccal mucosa, and mucobuccal folds.
7. Examine and palpate the tongue, including the dorsal and ventral surfaces,

lateral borders, and base. Retract to observe posterior third (figure 8-3).

8. Observe mucosa of the floor of the mouth. Palpate the floor of the mouth.
9. Examine hard and soft palates, tonsillar areas, and pharynx. Use mirror to observe oropharynx, nasopharynx, and larynx.
10. Note amount and consistency of the saliva and evidences of dry mouth.

C. Compare with Expected Normal Appearance.

Note deviations from normal.

D. Corroborate Findings

Corroborate findings with information from the patient's history.

E. Consult Dentist

Call questionable areas to the dentist's attention promptly.

III. Description of Observations

A. Record Form

1. Contain adequate space for complete descriptions of lesions observed; not merely a check sheet.
2. Contain spaces for successive examinations at periodic recall intervals.



Figure 8-3. Tongue examination. To observe the posterior third of the tongue and the attachment to the floor of the mouth, hold the tongue with gauze, retract the cheek and move the tongue first out to the right, then the left, as each section of mucosa is carefully inspected.

*From Wilkins, Esther M., *Clinical Practice of the Dental Hygienist*, 5th edition. Philadelphia: Lea & Febiger, 1983, pp. 115-120. Reprinted by permission.

B. Information to Include

1. Location. Describe the location in words or use a printed diagram on the record form to mark specific location of deviations from normal (figure 8-4).
2. History
 - a. Whether the lesion is known to the patient or not known.
 - b. Duration; changes in size and appearance.
 - c. Symptoms.
3. Physical Characteristics
 - a. Size: indicate width and depth in millimeters.
 - b. Shape or contour: define whether the lesion is elevated (papillary) or depressed (ulcer-like); pedunculated, cracked, fissured.
 - c. Color: compared with other areas of the patient's mouth.
 - d. Resiliency, consistency: firm, indurated, soft, spongy.
 - e. Surface texture: smooth, irregular.

(stem) which acts as a support and connector.

- d. *Verrucose*: covered with or full of wart-like growths.
- e. *Papillary*: small nipple-like elevation or projection.
- f. *Erythema*: red area of variable size and shape.
- g. *Petechia(e)*: minute round red spot.
- h. *Induration*: hardened area of tissue.
2. Types of Lesions
 - a. *Macule(macula)*: circumscribed spot, not elevated above the surrounding level and distinguished by a different color.
 - b. *Papule*: small (pinhead to 5 mm.), circumscribed, solid elevated area which may be pointed, rounded, or flattened.
 - c. *Vesicle*: small (2 to 5 mm.), circumscribed, elevated lesion having a thin surface covering and containing fluid (small blister).
 - d. *Bulla*: large (5 mm. to several cm.) vesicular-type lesion filled with fluid (large blister or bleb). A bullous lesion may develop individually or result from the union of several vesicles.
 - e. *Pustule*: vesicular-type lesion containing purulent material rather than clear fluid.
 - f. *Ulcer*: defect or break in continuity of the epithelium to produce a de-

C. Definitions

1. Descriptive Terminology
 - a. *Discrete*: separate, not running together or blending.
 - b. *Confluent*: running together, blended. Originally separate but subsequently formed into one.
 - c. *Pedunculated*: elevated, papillary-type lesions having a narrow part

Draw outlines of abnormalities in proper locations

MUCOSAL ABNORMALITIES

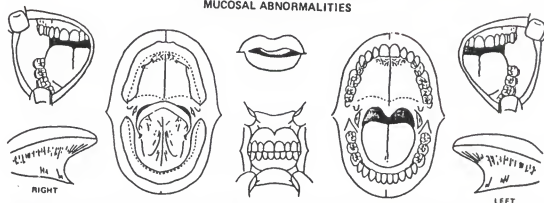


Figure 8-4. Record form for clinical findings. In this section of a clinical examination record form, outline of a deviation from normal may be drawn to show the location and relative size. (Courtesy, University of Southern California School of Dentistry.)

pressed area. It may result from the rupture of a vesicle or a bulla, and usually has some degree of erythema at the margin.

- g. *Erosion*: shallow defect that does not extend through the epithelium into underlying tissue.
- h. *Nodule*: solid elevated lesion (5 mm. to 2 cm. wide).
- i. *Tumor*: solid growth of varying size which arises from the mucosa and projects out; swelling or overgrowth of cells independent of normal growth.
- j. *Torus*: bony elevation or prominence

usually found on the midline of the hard palate (torus palatinus) and the lingual surface of the mandible (torus mandibularis) in the premolar area.

- k. *Leukoplakia*: white keratotic patch-like lesion on the mucosa which cannot be rubbed off.
- l. *Crust*: an outer layer, covering, or scab, which may have formed from coagulation or drying of blood, serum, or pus, or a combination. A crust may form after a vesicle breaks; for example, the skin lesion of chicken pox is first a macule, then a papule, then a vesicle, and then a crust.

Table 8-1. Extraoral and Intraoral Examination

Order of Examination	To Observe	Influences on Diagnosis and Appointments
1. Overall Appraisal of Patient	Posture, gait General health status; size Hair Breathing, state of fatigue Voice, cough, hoarseness	Response, cooperation, attitude toward treatment Length of appointment possible
2. Face	Expression: evidence of fear or apprehension Shape, twitching, paralysis Profile for occlusion classification Jaw movements during speech Injuries, signs of abuse	Need for alleviation of fears Use of face mask when evidence of upper respiratory infection Enlarged masseter muscle may relate to bruxism or clenching habit
3. Skin	Color, texture, blemishes Traumatic lesions Eruptions, swellings Growths, moles	Skin color may relate to systemic factors; need for additional medical history and referral Skin lesions may require biopsy Open lesions need treatment before oral treatment Influence on instruction in diet and health
4. Eyes	Size of pupil (figure 8-5) Color of sclera Eyeglasses (corrective; sunglasses) Protruding eyeballs	Pupils dilated or pinpoint as a result of certain emergency situations (shock, heart failure, Table 58-1, pages 845-848) Eyeglasses essential during instruction to patient Hyperthyroidism
5. Nodes (figure 8-6) Palpate: a. Auricular (anterior, posterior, inferior) b. Submental c. Submaxillary d. Cervical	Adenopathy; lymphadenopathy Induration Coordinate with intraoral examination	Need for referral for biopsy

Table 8-1. *continued*

<i>Order of Examination</i>	<i>To Observe</i>	<i>Influences on Diagnosis and Appointments</i>
6. Temporomandibular joint	Limitations or deviations during movement Tenderness, sensitivity Crepitation	Disorder of the joint Opening for plaque control
7. Lips	Color, texture, size Cracks, angular cheilosis Blisters, ulcers Traumatic lesions Irritation from biting habit	Wear gloves Need for biopsy; referral Immediate need for postponement of appointment when lesions may be contagious or could interfere with procedures Care during retraction
a. Observe closed, then open		
b. Palpate using thumb and index finger (figure 8-1)	Limitation of opening; muscle tone, elasticity Evidences of mouthbreathing or tongue thrusting Induration	Difficulty of accessibility or visibility during intraoral procedures Patient instructions: dietary, special plaque control procedures for mouthbreather
8. Breath Odor	Severity Relation to oral hygiene and overall gingival state	Possible relation to systemic condition Emphasis on oral care and plaque control
9. Labial and Buccal Mucosa (left and right examined systematically)	Color, size, texture, contour Abrasions, traumatic lesions checkbite, lip bite Effects of tobacco Ulcers, growths Moistness of membranes	Need for biopsy, referral, or cytologic smear
a. Observe vestibule, mucobuccal fold, frena, opening to Stensen's duct	Relation of frena to free and attached gingiva	Frena and other anatomical parts that need adaptation of impression tray Avoidance of sensitive areas during retraction, radiographic film placement, or plaque control instruction
b. Palpate the entire cheek areas	Flexibility of cheeks Induration	
10. Tongue and Floor of Mouth	Color, size, texture, consistency Papillae, fissures Coating Lesions: ulcers, traumatic Deviation or straight Asymmetry	Need for biopsy, referral, or cytologic smear Large muscular tongue affects retraction, gag reflex, and accessibility for instrumentation and film placement
a. Dorsum		
(1) at rest with mouth slightly open		
(2) protruded		
b. Base of tongue	Mobility; limitation of movement	Instruction: tongue brushing, dietary factors
Hold tip of tongue with gauze sponge		
Place mirror gently against uvula to view downward		
c. Lateral borders	Attachments to floor of mouth and back to the anterior pillar	
Hold tongue with sponge: extend to left then right (figure 8-3)	Swelling, ulceration, color changes	

Table 8-1. *continued*

<i>Order of Examination</i>	<i>To Observe</i>	<i>Influences on Diagnosis and Appointments</i>
d. Ventral Surface Ask patient to touch the palate with the tip of the tongue e. Ask patient to swallow. f. Palpate the entire tongue including the base. g. Palpate floor of mouth. (Place index finger of one hand in the mouth, other hand outside under the chin.)	Undersurface of tongue Varicosities Lesions on floor of the mouth Duct openings from submandibular and sublingual glands Lingual frenum attachments Freedom of movement of tongue Observe with lips slightly apart for evidence of tongue thrust. Induration, enlargements Induration, enlargements	Biopsy, referral, cytologic smear Care of sensitive areas during instrumentation Depth of floor of mouth and elasticity influence placement of radiographic films, and cotton roll holders Tonguetie
11. Saliva	Quantity Evidence of dry mouth shown by lip wetting, tongue protrusion, excess plaque Quality of saliva: watery, ropy, mucoid	Reduced in certain diseases and by certain drugs Corroborate with items from the history Excess can influence instrumentation techniques
12. Hard Palate Observe and palpate	Height, contour, color Appearance of rugae Tori, growths, ulcers	May need biopsy, referral, or cytologic smear Signs of tongue thrust and deviate swallow Influence radiographic placement
13. Soft Palate and Uvula Observe: depress tongue with mirror or tongue depressor	Color, size, shape Petechiae Ulcers, growths	Biopsy, referral, smear Large uvula can affect gag reflex
14. Tonsillar Region a. Depress tongue with mirror or tongue depressor b. Ask patient to say "Ah" to open the oropharynx c. Place mirror behind uvula, glass up, to observe nasopharynx. (Request patient to breathe through the nose and mouth.)	Anterior and posterior pillars Tonsils, size, shape Color, surface characteristics Lesions, trauma	Biopsy, referral, smear may be indicated Adjustment of procedures for effect of enlarged tonsils on gag reflex Need for face mask when patient has a throat infection (or possible postponement of the appointment) Instruction: adapt plaque control procedures in posterior region when patient has sensitivity to gagging

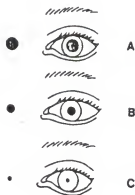
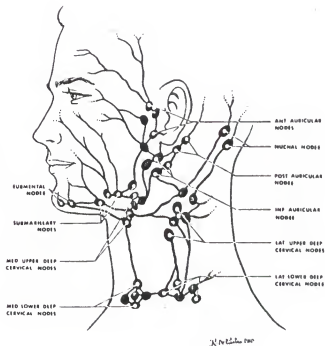


Figure 8-5. Examination of the pupils. A. Dilated, occurs in shock, heart failure, and other emergencies, and drug overdose of hallucinogens and amphetamines; B. Normal; C. Pinpoint, occurs in drug overdose of morphine and related drugs, and barbiturates. (Adapted from American National Red Cross, *Standard First Aid and Personal Safety*.)

Figure 8-6. Major lymph nodes with connecting vessels that drain the facial and oral regions. (From Mitchell, D.F., Standish, S.M., and Fast, T.B.: *Oral Diagnosis/Oral Medicine*, 3rd ed. Philadelphia, Lea & Febiger, 1978.)



APPENDIX E

CONSENT FORM FOR THE USE OF THE MOBILE DENTAL UNIT

Date _____ Applicant (patient) _____ City or area _____

CONSENT TO RENDER MEDICAL/DENTAL SERVICES AND RELEASE OF LIABILITY
FOR FREE EMERGENCY DENTAL CARE

I hereby authorize the dentists and chair assistants in attendance to examine and treat the applicant which includes myself or my minor child or ward as applicable, and to perform all medical, dental and surgical procedures, including anesthesia, as may be deemed necessary by the dentists. I also give consent to release medical information concerning my dental care, as well as, information concerning my minor child or ward.

I hereby release the associations and churches, the dentists and chair assistants in attendance, the Florida Baptist Convention and all other participating agencies and organizations from responsibility in connection with the dental care program. I also give consent to all participating agencies and organizations to make whatever arrangements may be necessary for the transportation of myself or my minor child or ward; and I hereby release the participating agencies and their agents from all responsibility and liabilities in connection with such transportation.

 Signature of applicant, (parent or guardian, if a
 minor or adult adjudicated incompetent)

 Date

 Witness

 Date

APPENDIX F

RESIDENTIAL TREATMENT SCHEDULE FOR THE ALCOHOLISM FACILITY

RESIDENTIAL TREATMENT SCHEDULE

RESIDENTIAL TREATMENT SCHEDULE							
TIME	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
7:15	BREAKFAST	BREAKFAST	BREAKFAST	BREAKFAST	BREAKFAST	BREAKFAST	BREAKFAST
8:00	PRIMARY GROUP	PRIMARY GROUP	PRIMARY GROUP	PRIMARY GROUP	COMINGEMENT	8:30 - 11:00 LAUNDRY	9:00 - 11:00 FELLOWSHIP MEET.
9:15	A.A. STEP 1: All Phase Groups to Dining Hall (except PHASE IV)	PHASE I: Iceberg Concept	A.A. STEP 2: All Phase Groups to Dining Hall	PHASE I: Group Process	HISTORY OF A.A.: All Phase Groups to Dining Hall (except PHASE IV)	ALL PHASE GROUPS: ALL PHASE GROUPS TO DINING HALL TO DINING HALL WEEK-END COUNS	ALL PHASE GROUPS: ALL PHASE GROUPS TO DINING HALL TO DINING HALL WEEK-END COUNS
10:30 to 11:30	PHASE II: Assertiveness	PHASE II: Assertiveness		PHASE II: Alcohol & other Drugs	PHASE IV: (Orientation Off.)		
	PHASE IV: Symptoms of Relapse (Orientation office)	PHASE III: Johari's Window		PHASE III: Trust			
		PHASE IV: Meet with new resident Orientation Off.		PHASE IV: Work on Survival Plan			
11:30	LUNCH	LUNCH	LUNCH	LUNCH	LUNCH	LUNCH	LUNCH
1:00 to 1:30			FAMILY ORIENTATION		PHASE IV: to ACU WITH ORIENTATION COUNSELOR	WINNING PRIMARY VISITATION GROUP TO MOVIES 1:00 to 4:00 RECREATION 1:00	
2:15	PHASE I: Denial	A.A. MEETING All Phase Groups to Dining Hall	PHASE I: Medical Aspects #1	COMMUNITY MEETING	ALL PHASE GROUPS to Dining Hall WEEK-END COUNS.		
2:30 to 3:30	PHASE II: Attitudes, Values and Beliefs		PHASE II: Grieving Cycle	A.A. MEETING All Phase Groups to Dining Hall			
	PHASE III: Needs and Wants		PHASE III: Sponsorship				
	PHASE IV: Work on Goals		PHASE IV: Work on Goals				
3:45	PRIMARY GROUP	PRIMARY GROUP	PRIMARY GROUP	CLEAN-UP	DINNER	DINNER	DINNER
4:30	DINNER	DINNER	DINNER	DINNER	DINNER	DINNER	DINNER
6:00	SPADE TOURNAMENT			BINGO			
8:00	A.A. MEETING		A.A. MEETING		A.A. MEETING	A.A. MEETING	LIGHTS OUT
11:00	LIGHTS OUT	LIGHTS OUT	LIGHTS OUT	LIGHTS OUT	LIGHTS OUT	LIGHTS OUT	LIGHTS OUT
11:30							
*ALL PHASE GROUPS WILL BE HELD IN THE ASSIGNED COUNSELOR'S ROOM UNLESS OTHERWISE NOTED							

*ALL PHASE GROUPS WILL BE HELD IN THE ASSIGNED COUNSELOR'S ROOM UNLESS OTHERWISE NOTED

RESIDENTIAL TREATMENT SCHEDULE							WEEK: 2		
TIME	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY		
7:15	BREAKFAST	BREAKFAST	BREAKFAST	BREAKFAST	BREAKFAST	BREAKFAST	BREAKFAST		
8:00									
8:45	PRIMARY GROUP	PRIMARY GROUP	PRIMARY GROUP	PRIMARY GROUP	COMMENCEMENT	3:30 - 11:00 LAUNDRY	9:00 - 11:00 FELLOWSHIP MEET.		
9:15									
10:30	A.A. STEP 3 All Phase Groups to Dining Hall (except PHASE IV)	PHASE I: Disease Concept	FINANCIAL SOBRIETY All Phase Groups to Dining Hall	A.A. STEPS 4 & 5: All Phase Groups to Dining Hall	PHASE I: Feedback Communications	ALL PHASE GROUPS TO DINING HALL WEEK-END COUNS.	ALL PHASE GROUPS TO DINING HALL WEEK-END COUNS.		
11:30		PHASE II: Reality	LINDA		PHASE II: Spiritual Aspects				
	PHASE IV: Symptoms of Relapse (Orientation Off.)	PHASE III: Alternatives to Alcohol and other Drugs	PHASE I: Medical Aspects #1		PHASE III: Relationships, Personality Defects				
		PHASE IV: Meet with new residents Orientation Off.			PHASE IV: Orientation Office				
11:30	LUNCH	LUNCH	LUNCH	LUNCH	LUNCH	LUNCH	LUNCH		
1:00			FAMILY ORIENTATION		PHASE IV: to ACU with ORIENTATION COUNSELOR	PHASE IV: to ACU with ORIENTATION COUNSELOR	WINNING PRIMARY VISITATION GROUP TO MOVIES 1:00 to 4:00 RECREATION 1:00		
1:00 to 4:00									
2:15				COMMUNITY MEETING					
2:30	A.A. TRADITIONS 1 THROUGH 6: All Phase Groups to Dining Hall (except PHASE IV)	A.A. MEETING All Phase Groups to Dining Hall	ORIENTATION, PHASE I & II: addiction	A.A. MEETING: All Phase Groups to Dining Hall	ALL PHASE GROUPS TO DINING HALL WEEK-END COUNS.				
3:30									
	PHASE IV: Work on goals		PHASE III: Eight Stages of Man (Erickson)						
			PHASE IV: Work on Goals						
3:45	PRIMARY GROUP	PRIMARY GROUP	PRIMARY GROUP	CLEAN-UP					
4:30	DINNER	DINNER	DINNER	DINNER	DINNER	DINNER	DINNER		
6:00		SPADE TOURNAMENT		SHACO					
8:00	A.A. MEETING		A.A. MEETING		A.A. MEETING	A.A. MEETING	A.A. MEETING		
11:00	LIGHTS OUT	LIGHTS OUT	LIGHTS OUT	LIGHTS OUT	LIGHTS OUT	LIGHTS OUT	LIGHTS OUT		
11:30									

*ALL PHASE GROUPS WILL BE HELD IN THE ASSIGNED COUNSELOR'S ROOM UNLESS OTHERWISE NOTED

RESIDENTIAL TREATMENT SCHEDULE

WEEK: 3

TIME	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
7:15	BREAKFAST	BREAKFAST	BREAKFAST	BREAKFAST	BREAKFAST	BREAKFAST	BREAKFAST
8:00	PRIMARY GROUP	PRIMARY GROUP	PRIMARY GROUP	PRIMARY GROUP	PRIMARY GROUP	8:30 - 11:00 LAUNDRY	9:00 - 11:00 FELLOWSHIP MEET.
8:45	A.A. TRADITIONS: 7 THROUGH 12: to Dining Hall	PHASE I: Iceberg Concept to Dining Hall	A.A. STEPS 6 & 7 to Dining Hall	PHASE I: Group Process	A.A. STEPS 8 & 9: All Phase Groups to Dining Hall	ALL PHASE GROUPS TO DINING HALL	ALL PHASE GROUPS TO DINING HALL
9:15	(except Phase IV)	PHASE II: Assertiveness		PHASE II: Alcohol and other Drugs	(except Phase IV)	WEEK-END COUN.	WEEK-END COUN.
10:30	PHASE IV: Symptoms of Relapse (Orientation Office)	PHASE III: Dohari's Window	PHASE III: Trust	PHASE IV: Work on Survival Plan	PHASE IV: Orientation Office		
11:30	PHASE IV: Meet with new residents Orientation Off.						
11:30	LUNCH	LUNCH	LUNCH	LUNCH	LUNCH	LUNCH	LUNCH
1:00			FAMILY ORIENTATION	1:00 FOOD STAMP REAPPLICATION MARY'S OFFICE 3-5	PHASE IV: to ACU with ORIENTATION COUNSELOR:	WINNING PRIMARY GROUP TO MOVIES 1:00 to 4:00 RECREATION 1:00	VISITATION 1:00 to 4:00 RECREATION 1:00
2:15	PHASE I: Denial (License Mech.) to Dining Hall	A.A. MEETING All Phase Groups to Dining Hall	PHASE I: Medical Aspects #1	COMMUNITY MEETING A.A. MEETING All Phase Groups to Dining Hall	ALL PHASE GROUPS TO DINING HALL		
2:30	PHASE II: Attitudes Values & Beliefs		PHASE II: Grieving Cycle		WEEK-END COUN.		
3:30	PHASE III: Needs, and Wants		PHASE III: Slogans				
	PHASE IV: Work on goals		PHASE IV: Work on Goals				
3:45	PRIMARY GROUP	PRIMARY GROUP	PRIMARY GROUP	CLEAN-UP			
4:30	DINNER	DINNER	DINNER	BINGO	DINNER	DINNER	DINNER
6:00	SPADE TOURNAMENT			LIGHTS OUT	A.A. MEETING	A.A. MEETING	LIGHTS OUT
8:00	A.A. MEETING	LIGHTS OUT			LIGHTS OUT	LIGHTS OUT	LIGHTS OUT
11:00	LIGHTS OUT						

*ALL PHASE GROUPS WILL BE HELD IN THE ASSIGNED COUNSELOR'S ROOM UNLESS OTHERWISE NOTED

RESIDENTIAL TREATMENT SCHEDULE						WEEK: 4	
TIME	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
7:15	BREAKFAST	BREAKFAST	BREAKFAST	BREAKFAST	BREAKFAST	BREAKFAST	BREAKFAST
8:00							
8:15	PRIMARY GROUP	PRIMARY GROUP	PRIMARY GROUP	PRIMARY GROUP	CONCERNMENT LAUNDRY	8:30 - 11:00 FELLOWSHIP MEET.	
9:15					PHASE I: Communication and Feedback	ALL PHASE GROUPS TO DINING HALL	ALL PHASE GROUPS TO DINING HALL
10:30	A.A. STEPS 10, 11 and 12: All Phase Groups to Dining Hall (except Phase IV)	PHASE I: Stages of Alcoholism (Disease Concept) All Phase Groups to Dining Hall	GOAL SETTING, MOTIVATION, CIRCLE OF LEARNING All Phase Groups to Dining Hall	FAMILY DISEASE All Phase Groups to Dining Hall		WEEK-END COUNS	WEEK-END COUNS
11:30					PHASE II: Spiritual Aspects		
	PHASE IV: Symptoms of Relapse (Orientation Off.)	PHASE III: Alternatives to Alcohol and other Drugs	PHASE I: Medical Aspects #2		PHASE III: Relationships and Personality Defects		
					PHASE IV: Orientation Office		
11:30	LUNCH	PHASE IV: Meet with new residents on Counselor's Office	LUNCH	LUNCH	LUNCH	LUNCH	LUNCH
1:00			FAMILY ORIENTATION		PHASE IV: to ACU with ORIENTATION COUNSELOR:	WINNING PRIMARY GROUP TO MOVIES 1:00 to 4:00 RECREATION 1:00	RECREATION 1:00
2:15				COMMUNITY MEETING			
2:30	DOCTOR'S OPINION to All Phase Groups to Dining Hall (except Phase IV)	A.A. MEETING All Phase Groups to Dining Hall	ORIENTATION & PHASE I & II Addition	A.A. MEETING All Phase Groups to Dining Hall	ALL PHASE GROUPS TO DINING HALL WEEK-END COUNS		
3:30							
	PHASE IV: Work on Goals		PHASE III: Eight Stages of Man (Erickson)				
			PHASE IV: Work on Goals				
3:45	PRIMARY GROUP	PRIMARY GROUP	PRIMARY GROUP	CLEAN-UP			
4:30	DINNER	DINNER	DINNER	DINNER	DINNER	DINNER	DINNER
6:00		SPADE TOURNAMENT		EDGO			
8:00	A.A. MEETING		A.A. MEETING		A.A. MEETING	A.A. MEETING	
11:00	LIGHTS OUT	LIGHTS OUT	LIGHTS OUT	LIGHTS OUT	LIGHTS OUT	LIGHTS OUT	LIGHTS OUT
11:30							

*ALL PHASE GROUPS WILL BE HELD IN THE ASSIGNED COUNSELOR'S ROOM UNLESS OTHERWISE NOTED

APPENDIX G
PSYCHOSOCIAL FORM

GATEWAY COMMUNITY SERVICES, INC.
INTAKE/PSYCHOSOCIAL ASSESSMENT
(PARTS I, II, III)

Name _____ Date _____

Address _____ Phone _____

DOB _____ Race _____ Sex _____ Height _____ Weight _____

Next of Kin _____ Relationship _____

Address _____ Phone _____

Referred By: _____ Coercive Factor _____

Current Employment _____ Length _____ Monthly Salary _____

Spouse's Employment _____ Length _____ Monthly Salary _____

Other Sources of Income/Gross Amls: _____

Health Ins. _____ Policy No. _____

No. of Times Married _____ Present Marital Status _____

Medical Problems _____

I. Alcohol-Related Data

A. # of Times in Detoxification Centers _____

B. # of Times in: Salvation Army _____ HWH'S _____ Rescue Missions _____ Other _____

C. # of Times Received Medical Attention (Hospital, Physician) _____

D. # of Times used any other resources (Mental Health, State Hospitals, Etc.) _____

E. # of Times in Jail for Alcohol Related Incidents _____

F. # of Times in TWT for Alcoholism/Dates _____

G. # of DWI'S and Dates _____

H. Legal Status _____

I. Age: First Contact _____ First Drinking Experience _____ First Intoxication _____

First Eye-Opener _____ Relief Dringing _____ First Blackout _____ Morning Tremors _____

Convulsions _____ Hallucinations _____ DT'S _____ Personality Change _____ Fights _____

J. Pattern: Daily _____ Weekend _____ Periodic _____ Alone _____ Bors _____ Friends _____

K. Aml/24 hr. Period: Present _____ Beverages _____

Peak _____ Beverages _____

File No. _____ Name (Last Name First) _____ Social Security No. _____

PART II

VIII. CURRENT LEVEL OF FUNCTIONING (IMPRESSION) CIRCLE

Appears Stated Age	Older	Same	Younger
Neatness/Cleanliness	Above Avg.	Average	Below Avg.
Voice	Loud	Normal	Faint
Motor Activity	Agitated	Normal	Retarded
Speech:			
Relevant	Yes	No	Uncertain
Coherent	Yes	No	Uncertain
Orientation:			
Time	Yes	No	Uncertain
Place	Yes	No	Uncertain
Person	Yes	No	Uncertain
Memory			
Recent	Normal	Impaired	Uncertain
Remote	Normal	Impaired	Uncertain
Judgment	Average	Above Avg.	Below Avg.
Insight	Average	Above Avg.	Below Avg.
Depressed	Yes	Partial	Uncertain
Elated	Yes	No	Uncertain
Hostile	Yes	No	Uncertain
Fear	Yes	No	Uncertain
Anxious	Yes	No	Uncertain
Inappropriate	Yes	No	Uncertain
Delusional	Yes	No	Uncertain
Hallucinations	Yes	No	Uncertain
Self-Image	Good	Fair	Poor
Desire for Help	Good	Fair	Poor
Attitude	Good	Fair	Poor
General Responses	Flattened	Normal	Fluctuate

Additional Comments/Summary of Findings (Example - Motivation)

Interviewer _____

Date _____

Supervisor _____

Date _____

File No. _____

Name (Last Name First) _____

Social Security No. _____

PART I

L. Loss of Control _____ Last Drink _____

M. Problems Caused by Drinking: Job _____ Family _____ Finances _____ Health _____ Sex _____

N. Attempt to Stop Drinking Before? _____ When _____ How Long _____

AA Attendance? _____ ANTABUSE? _____ Other _____

II. OTHER DRUG USE/ABUSE

(PATTERNS OF SUBSTANCE USE/ABUSE)

Substance Used					
Choice (Rank Order)					
Frequency (Current)					
Administration (Route)					
Year First Used					

1. Date of Last Drug Use, Substance Used and How Much? _____

2. Have you ever Overdosed, Experienced Withdrawal or had an Adverse Reaction?

Yes _____ No _____ If Yes, Explain _____

3. Have you ever Attempted Suicide? Yes _____ No _____ If Yes, Give Dates and Circumstances. _____

Recommendations

Interviewer _____

Date _____

Client's Signature _____

Date _____

PART II

III. HOUSING, EDUCATIONAL, EMPLOYMENT BACKGROUND

Residence: House _____ Apt. _____ Rent _____ Buying _____ Other _____ None _____

Number in Household _____ Head of Household _____

Education: Years _____ Degree/Major _____

Vocational Training: Yes _____ No _____ Area _____

EMPLOYMENT HISTORY/MILITARY SERVICE

[illegible]

DATE

Job Skills _____

Have You Ever Lost A Job Due To Drinking? _____

Military Service: Yes _____ No _____ Army _____ Navy _____ Air Force _____ Marines _____ Coast Guard _____

Length of Service _____ Rank/Type of Discharge _____

V. A. History _____

IV. CRIMINAL JUSTICE SYSTEM

No. of Arrests (Alcohol Related) _____ Non-Alcohol Related _____

No. of Convictions _____ No. Times in Jail _____

No. Times in Prison & Length _____

No. Times on Probation/Parole _____

Cases/Warrants Pending _____

Current Probation/Parole Officer _____

V. SPIRITUAL WELL-BEING (EXAMPLE - CONCEPT OF HIGHER POWER)

File No.	Name (Last Name First)	Social Security No.
----------	------------------------	---------------------

PART II

VI. PHYSICAL HEALTH

List Any Physical Handicaps _____

Serious Illness/Surgery (Dates) _____

Describe Any Medication Presently Taking _____

VII. FAMILY HISTORY/MARRIAGE BACKGROUND

Place of Birth _____

Father's Occupation _____

Mother's Occupation _____

No. of Brothers _____ No. of Sisters _____ Birth Order _____ Parents Religion _____

Raised By Both Parents? _____ Explain _____

Describe Mother _____

Describe Father _____

Describe Home Life _____

Marital Status: Single _____ Married _____ Widowed _____ Divorced _____ Separated _____

No. of Marriages & Duration _____

No. Children _____ Ages/Sex _____

Current Relationship with Parent's/Siblings/Spouse _____

History of Alcoholism in Family? _____

Family's Attitude Toward Drinking _____

PSYCHOSOCIAL UPDATE

Date _____

I. Employment

II. Living Situation

III. Family/Peer Relationship

IV. Maintenance of Sobriety

V. Current Level of Functioning (Impression)

Counselor	Date	Supervisor	Date
File Number	Name (last name first)	Social Security No.	

APPENDIX H

INSTRUCTIONS FOR USING THE FLUORIDE OR PLACEBO GEL

EXPERIMENTAL AND STAFF CONTROL GROUP INSTRUCTIONS

1. Thoroughly clean your teeth and surrounding tissues with the toothbrush and an interdental aid.
2. Rinse well.
3. Place the gel across your toothbrush and using the sulcular brushing method demonstrated for you, work the gel between the tooth and gum. Use the rubber cone stimulator to work the gel in the gingival sulcus in between the teeth. Finally, work the gel over the other surfaces of the teeth.
4. Following this procedure, swish the remaining gel in your mouth for 1 minute.
5. Empty your mouth, but do not rinse for at least 30 minutes.

RESIDENTIAL CONTROL GROUP INSTRUCTIONS MANUFACTURER'S WRITTEN DIRECTIONS ON THE CONTAINER OF GEL

This gel is recommended for use at bedtime by caries-active individuals. After toothbrushing, rinse mouth well, place gel on toothbrush and work the gel over the surface of the teeth. After 1 minute expectorate, but do not rinse.

APPENDIX I

TOOTHBRUSHING AND INTERDENTAL CLEANING TECHNIQUES

ORAL PHYSIOTHERAPY TECHNIQUES*

THE ROLL or ROLLING STROKE METHOD

I. Purposes and Indications

- A. Cleaning gingiva and removal of plaque, materia alba, and food debris from the teeth without emphasis on gingival sulcus.
 - 1. For children and adults with relatively healthy gingiva and normal tissue contour.
 - 2. For general cleaning in conjunction with the use of a vibratory technique (Charters', Stillman, or Bass).
- B. Useful for preparatory instruction (first lesson) for modified Stillman's technique since the initial brush placement is the same. This can be particularly helpful when there is a question as to how complicated a technique the patient can master and practice.

II. Technique^{5,8}

A. Grasp Brush Handle

Direct filaments apically (up for maxillary, down for mandibular teeth).

B. Place Side of Brush on the Attached Gingiva

The filaments are directed apically. When the plastic portion of the brush head is level with the occlusal or incisal plane, generally the brush will be at the proper height as shown in figure 22-4A.

*From Wilkins, Esther M., Clinical Practice of the Dental Hygienist, 5th edition. Philadelphia: Lea & Febiger, 1983, pp. 344-352, 360-368. Reprinted by permission.

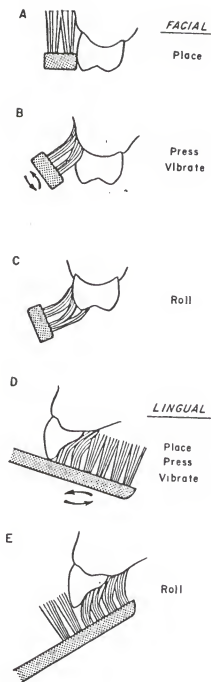


Figure 22-4. Modified Stillman method of brushing. A. Initial brush placement with sides of bristles or filaments against attached gingiva. B. The brush is pressed and angled, then vibrated, with sides of brush ends partly on the gingiva and partly on the tooth. C. Vibrating is continued as the brush is rolled over the crown to complete the stroke. D. Maxillary anterior lingual placement and activation. The brush is applied the long way. E. Vibrating continues as the brush is rolled over the crown and interdental areas. Placement for lingual of mandibular anterior is the same as for maxillary with the brush turned down.

C. Press to Flex the Filaments

The sides of the filaments are pressed against the gingiva. The gingiva will blanch.

D. Roll the Brush Slowly Over the Teeth

As the brush is rolled, the wrist is turned slightly. The filaments remain flexed and follow the contours of the teeth, thereby permitting the cleaning of the cervical areas. Some filaments will reach interdentally.

E. Replace and Repeat Five Times or More

The entire stroke (Parts A through D, above) is repeated at least five times for each tooth or group of teeth. When the brush is removed and repositioned, the wrist is rotated, the brush moved away from the teeth, and the cheek stretched buccally with the back of the plastic portion. Care must be taken not to drag the filament tips over the gingival margin when the brush is returned to the initial position (figure 22-4A).

F. Overlap Strokes

When moving the brush to an adjacent position, overlap the brush position as shown in figure 22-3.

G. Position Brush for Lingual Surfaces

1. Use the brush the long, narrow way.
2. Hook the heel of the brush on the incisal edge (figure 22-4D).
3. Press down for maxillary (up for mandibular) until the filaments lie flat against the teeth and gingiva.
4. Press and roll (curve up for mandibular, down for maxillary teeth).
5. Replace and repeat five times for each brush width. (Brush placement across the anterior lingual can be compared with the hands of a clock or spokes of a wheel.)

III. Problems

- A. Brushing too high during initial placement can lacerate the alveolar mucosa.
- B. Tendency to use quick, sweeping strokes results in no brushing for the cervical third of the tooth, since the brush tips pass over rather than into the area; and likewise for the interproximal areas.

significant in the control of gingival and periodontal disease. Because of potential damage to the gingival tissue, only a soft nylon brush with rounded filament ends is indicated.

I. Purposes and Indications

- A. For all patients for dental plaque removal adjacent to and directly beneath the gingival margin.
- B. Particularly adaptable for open interproximal areas, cervical areas beneath the height of contour of the enamel, and exposed root surfaces.
- C. Useful for the patient who has had periodontal surgery.

II. Technique¹¹

A. Grasp Brush Handle

Direct the filaments apically (up for maxillary, down for mandibular teeth). Even though the brush placement calls for directing the filaments at a 45-degree angle, it is usually easier and safer for the patient to adjust the brush after first placing it parallel with the long axis of the tooth.

B. Angle the Filaments

Place the brush with the filament tips directed straight into the gingival sulcus. The filaments will be directed at approximately 45 degrees with the long axis of the tooth as shown in figure 22-5 A and B.

C. Press Lightly Without Flexing

Press lightly so the filament tips enter the gingival sulci and embrasures and cover the gingival margin. Do not bend the filaments.

D. Vibrate the Brush

Vibrate the brush back and forth with very short strokes without disengaging the tips of the filaments from the sulci. Count at least ten vibrations.

E. Reposition the Brush

Apply the brush to the next group of two or three teeth. Take care to overlap placement as shown in figure 22-3.

F. Repeat Stroke

The entire stroke (Parts A through D, above) is repeated at each position around the maxillary and mandibular arches, both facially and lingually.

G. Position Brush for Lingual Anterior Surfaces (figure 22-6)

Hold the brush the long narrow way for the anterior components as described for the rolling stroke technique. The filaments are kept straight and directed into the sulci.

III. Problems

- A. An over-eager brusher may convert the "very short strokes" (note II, D. above) into a scrub-brush technique and cause injury to the gingival margin.
- B. Dexterity requirement is too high for certain patients.
- C. Rolling stroke procedure may precede the sulcular brushing when a patient believes it helps to clean the teeth. It is recommended that the two techniques be performed separately rather than trying to combine them in what has been referred to as a "modified Bass."

The procedure of rolling the brush down over the crown after the vibratory part of the sulcular brush stroke has several disadvantages: (1) too often the brush is hastily and carelessly replaced into the sulcus position, or else the opposite is true and considerable time is consumed in the attempt to replace the brush carefully; (2) gingival margin injury by the constant replacement of the brush is common; and (3) concentration is not on the important objective, which is to remove the plaque at and under the gingival margin. Patients may tend to roll

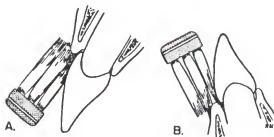


Figure 22-5. Sulcular method of brushing. Filament tips are directed into the gingival sulcus. The filaments are placed at approximately 45 degrees with the long axis of the tooth. A. Maxillary facial. B. Mandibular facial.

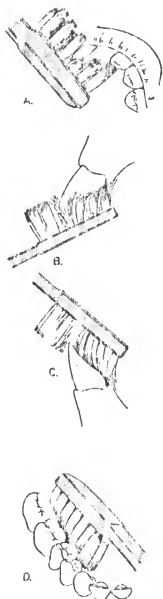


Figure 2-5 Subular-brushing, lingual surfaces. A. Brush positioned for maxillary anterior. B. Filament tips are directed into the gingival sulcus. C. Lingual of maxillary anterior with filaments in sulcus. D. Brush positioned for lingual of posterior.

the brush down over the crown, primarily and very little subular brushing may be accomplished.

THE CHARLERS METHOD

The original intent, as described by Charlars,¹² was to use the toothbrush in a manner that would stimulate the gingival margin "all around each tooth, especially in the interdental spaces."

The method is generally not used when there are normal interdental papillae since other methods may be easier to teach.

I. Purposes and Indications

- Loosening of debris and plaque.
- Massage and stimulation for marginal and interdental gingiva.
- Indicated to aid in plaque removal from proximal tooth surfaces when interproximal tissue is missing as, for example, following periodontal surgery.
- Adaptable to cervical areas below the height of contour of the crown, and to exposed root surfaces.
- Useful for cleaning abutment teeth and under the gingival border of a fixed partial denture (bridge), or the under surface of a sanitary bridge.
- Aids in cleansing orthodontic appliances (figure 24-6C, pages 383-384).

II. Technique¹³

A. Apply Rolling Stroke Technique

Instruct in a basic rolling stroke technique for general cleaning to be accomplished first.

B. Crisp Brush Handle

Hold brush (outside the oral cavity) with filaments directed toward the occlusal or incisal plane of the teeth that will be brushed. The tips are pointed down for application to the maxillary and pointed up for application to the mandibular arch. Insert the brush held in the direction it will be used.

C. Place the Brush

Place the sides of the filaments against the enamel with the brush tips toward the occlusal or incisal plane.

D. Angle the Filaments

Angle at approximately 45 degrees with the occlusal or incisal plane. Slide the brush to a position at the junction of the free gingival margin and the tooth surface (figure 22-7B).

E. Press Lightly

Press lightly to flex the filaments and force the tip between the teeth. The sides of the

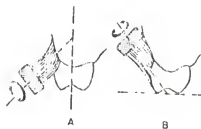


Figure 22-7. Comparison of brush positions for Stillman and Charters' methods. A. Stillman. The brush is angled at approximately 45 degrees with the long axis of the tooth. B. Charters'. The brush is angled at approximately 45 degrees with the occlusal plane, with brush tip directed toward the occlusal or incisal.

filaments are pressed against the gingival margin.

F. Vibrate the Brush

Vibrate gently but firmly, keeping the tips of the filaments in contact. Count to ten slowly as the brush is vibrated by a rotary motion of the handle.

G. Reposition the Brush and Repeat

Repeat Parts B through F, above, several times in each position around the dental arches.

H. Overlap Strokes

When moving the brush to an adjacent position, overlap the brush position as shown in figure 22-3.

Position Brush for Lingual Surfaces

Since Charters' brush positioning is difficult to accomplish on the lingual, a modified Stillman technique is frequently advised. When Charters' method is preferred, the positions are as follows:

1. Posterior

- With brush tips pointed toward the occlusal, extend the brush handle across the incisal of the canine of the side opposite that to be brushed.
- Place the sides of the toe-end filaments against the distal of the most posterior tooth and subsequently at each embrasure.
- Press and vibrate.

2. Anterior

- With brush handle parallel with the

long axis of the tooth, place the sides of the toe-end filaments over the interproximal embrasure.

- Press and vibrate.

J. Application of Brush for Fixed Partial Denture

When placing the brush, check that the filament tips are directed under the gingival border of the pontic.

III. Problems

- Brush ends do not engage the gingival sulcus to remove subgingival bacterial accumulations.
- In some areas, the correct brush placement is limited or impossible; therefore, modification become necessary which add to the complexity of the procedure.
- Requirements in digital dexterity are high.

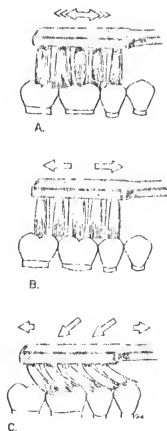


Figure 22-10. Occlusal brushing. A. Vibrating brush with light pressure while maintaining the filament tips on the occlusal surface to permit tips to work their way into the pits and fissures. B. Long horizontal strokes contact only the occlusal surface. C. Excess pressure forces filament tips away from pits and fissures and damages the filament.

D. Brushing Procedure

1. Hold the brush handle at a right angle to the midline of the tongue and direct the brush tips toward the throat.
2. With the tongue extruded, the sides of the filaments are placed on the posterior part of the surface.
3. With light pressure draw the brush forward and over the tip of the tongue. Repeat three or four times. Do not scrub the papillae.

2. Retardation of plaque formation and total plaque accumulation.
3. Reduction of number of microorganisms. When brushing of the tongue is discontinued, the number of organisms increases.
4. Contribution to overall cleanliness.

C. Tongue Anatomy Conducive to Debris Retention

1. **Surface Papillae** Numerous filiform papillae extend as minute projections, while fungiform papillae are not as high and create elevations and depressions that entrap debris and microorganisms.
2. **Fissured Tongue** Fissures may be several millimeters deep and retain debris

II. Occlusal Brushing

A. Objectives

1. To loosen plaque microorganisms packed in pits and fissures.
2. To remove plaque deposits from occlusal surfaces of teeth out of occlusion or not used during mastication.
3. To remove plaque from the margins of restorations.
4. To apply fluoride from fluoride dentifrice.

III. Tongue Brushing

Total mouth cleanliness includes tongue brushing.

A. Microorganisms of the Tongue

1. Main foci for oral microorganisms
 - a. Dorsum of tongue.
 - b. Gingival sulci and pockets.
 - c. Dental plaque on all teeth.
2. Microorganisms in saliva are principally from the tongue.
3. Tongue organisms influence the flora of the entire oral cavity.

B. Technique

1. Place brush on occlusal of molar teeth with filament tips pointed into the occlusal pits at a right angle. The handle should be parallel with the occlusal surface. The toe of the brush should cover the distal grooves of the most posterior teeth.
2. Two acceptable strokes are suggested
 - a. Vibrate the brush in a slight circular movement while maintaining the filament tips on the occlusal surface throughout a count of ten. Press moderately so filaments do not bend but go straight into the pits and fissures (figure 22-10).
 - b. Force the filaments against the occlusal surface with sharp, quick strokes; lift the brush off each time to dislodge debris; repeat about ten times.
3. Move brush to premolar area, overlapping previous brush position.

C. Precautions

Long scrubbing strokes from anterior to posterior on a occlusal surface may contact only the prominent part of the cusp (figure 22-10B and 10C).

B. Effects of Cleaning the Tongue^{19,20,21}

1. Reduction of oral debris.

I. Objectives of Interdental Care

The interdental papillae may be missing or reduced in height because of (1) disease such as necrotizing ulcerative gingivitis, (2) surgical procedures essential in the treatment of periodontal diseases, or (3) habitual pressure atrophy caused by the use of interdental tips or other devices which are contraindicated when interdental gingiva fill the embrasure. As a result of the exposure of the tooth surfaces, the changes in shape of the interdental tissue, and the general trapping of debris in the annular spaces, specific care is needed.

The general objective for plaque control and oral physical therapy apply to this area (page 335). With the judicious use of the various methods and devices available, disease control of the interdental area can be accomplished by a motivated patient.

II. Role of Toothbrushing

Interproximal vibratory and sulcular brushing such as Charters', Stillman, and the Bass techniques, using a soft brush, can be successful to some degree in removing dental plaque from the proximal surfaces of the teeth. However, all of the proximal plaque is rarely removed by toothbrushing alone.

For complete plaque and debris removal from proximal tooth surfaces, more than the toothbrush is generally needed. Various material and devices are described in the sections following.

Removal of all calculus and toothbrushing of the tooth surface increases the effectiveness of devices. Rough tooth surfaces retain plaque which initiates inflammation. Large deposits of calculus and overhanging restorations interfere with the use of devices; for example, dental floss catches and binds when applied to overhanging margins of restorations or calculus deposits.

It is not generally recommended that instruments that are used to apply pressure for massage or stimulation be used without first removing subgingival calculus. Rubbing the inflamed gingival wall of the pocket over calculus may aggravate the inflammatory reaction.

DENTAL FLOSS AND TAPE

When dental floss is applied with firm pressure to a flat or convex proximal tooth surface, plaque can be removed. A concave tooth surface

would escape contact with the floss. Figure 23-9A (page 365) illustrates this for the mesial of the maxillary first premolar.

I. Types of Floss

A. Unwaxed

Frequently recommended because it is thinner and slips through close contacts with ease, and because it may be more absorbent and hold plaque as it is removed.

B. Waxed

May be particularly indicated during the initial period of patient care before restorative work is completed and tooth surfaces are completely scaled and root planed, because the unwaxed floss shreds and tears more easily. The tearing may aggravate the patient and discourage continued use.

II. Indications

For most patients dental floss can best be used before toothbrushing. Not only does this assure that caries susceptible proximal surfaces will be de-plaqué, but also that the fluoride from the dentifrice used during brushing will be able to reach the proximal surfaces for caries prevention.

In addition to plaque removal from proximal tooth surfaces, flossing removes food debris and materia alba from interproximal areas. This contributes to general oral sanitation and the control of halitosis.

When there is inadequate contact and the patient indicates that floss or toothpicks are required to relieve pressure from impacted food, dental attention may be needed. The area should be charted or otherwise brought to the attention of the dentist.

III. Procedure

A. Floss Preparation

1. Hold a 12- to 15-inch length of floss with the thumb and index finger of each hand; grasp firmly with one-half inch of floss between the finger tips. The ends of the floss may be tucked into the palm and held by the ring and little finger, or the floss may be wrapped around the middle fingers (figure 23-1A, B and C).

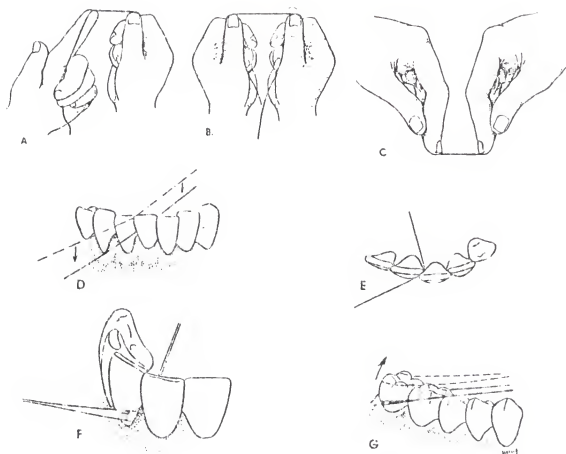


Figure 23-1. Directions for use of floss. **A** For maxillary insertion hold the floss between the thumb and index finger on **B**, between thumbs. Crasp the floss firmly. Allow one-half to one inch between fingers. **C** For mandibular teeth, direct the floss down, guided by the index fingers. **D** Work the floss slowly between the teeth in a short sawing motion. Avoid snapping the floss on the contact area. **E** Curve the floss around the tooth in a C-shape. Hold the floss toward the mesial for cleaning the distal surfaces, and toward the distal for cleaning mesial surfaces. **F** Press the floss firmly against the tooth. Move gently beneath the gingiva until tissue resistance is felt. Slide the floss horizontally and vertically with pressure to remove plaque. **G** Begin flossing with the distal of the most posterior tooth and work systematically around the arch.

2. A circle of floss may be made by tying the ends together; the circle may be rotated around as the floss is used (figure 23-2).

B. Application

1. **Mandibular Teeth** Direct the floss down by holding the two index fingers on top of the strand. One index finger holds the floss on the lingual and the other on the facial. The side of the finger on the lingual is held on the teeth of the opposite side of the mouth to serve as a fulcrum or rest.
2. **Maxillary Teeth.** Direct the floss up by holding the floss over two thumbs or a thumb and an index finger as shown in

figure 23-1A,B,C. Rest a side of a finger on teeth of opposite side of the maxillary arch to provide balance and a fulcrum.

C. Insertion

1. Hold floss in a diagonal or oblique position (figure 23-3).
2. Ease the floss past each contact area with a gentle sawing motion.
3. Control floss to prevent snapping through the contact area onto the gingival tissue.

D. Cleaning Stroke

1. Clean adjacent teeth separately: for the distal aspect curve the floss mesially, and for the mesial aspect curve the floss dis-

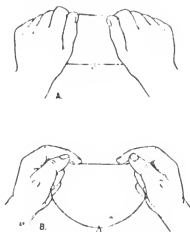


Figure 23-2. Circle of floss. The ends of the floss are tied together for convenient holding. A child may be able to manage floss better with this technique. A. Held for maxillary. B. Mandibular.

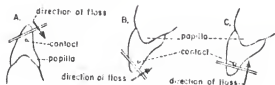


Figure 23-3. Insertion of floss. Hold floss in a diagonal or oblique position. Arrows indicate direction of movement of floss. A. Mandibular. B. Maxillary. C. Incorrect. When floss is held horizontally there is greater possibility for damage to the papilla.

tally, around the tooth (figure 23-1E, F, and G).

2. Pass the floss below the gingival margin, press to adapt the floss around the tooth, and slide up the tooth surface. Repeat.

E. Additional Suggestions

1. When a dentifrice is used, dental tape may retain the dentifrice against the tooth, better than floss.
2. Slide the floss to a new, unused portion for succeeding proximal tooth surfaces.
3. Floss may be used double to provide a wide rubbing surface.

IV. Precautions

A. Pressure in Col Area

The col area is not keratinized and is vulnerable to disease. Plaque control of the area

is of great importance since most gingival and periodontal disease begins in the col area. Too great pressure with floss one or more times daily, particularly very fine floss that tends to cut more easily than thicker floss, can be destructive to the attachment. This may be of particular significance in children while teeth are in the process of eruption.

B. Prevention of Floss Cuts

1. **Location.** Floss cuts occur primarily on facial or lingual surfaces directly beside or in the middle of an interdental papilla. They appear as straight line cuts from the gingival margin toward the mucogingival junction.
2. **Causes of Floss Cuts**
 - a. Too long a piece of floss between the fingers when held for insertion.
 - b. Snapping the floss through the contact area.
 - c. Not curving the floss about the teeth; floss held straight across the papilla.
 - d. Not using a rest to prevent undue pressure.

V. Use of Floss Holder

A. Types

Several types of plastic floss holders are available (figure 23-4).

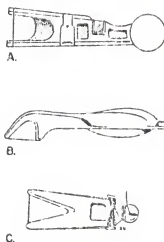


Figure 23-4. Examples of floss holders. A. has replaceable floss container. B. has replaceable floss cartridge and thin edge for cleaning the tongue. C. has threading mechanism which requires a 24-inch length of floss applied at each use.

B. Use

Careful instruction should be provided and supervision given periodically to prevent tissue damage. As threaded into a holder, the floss is in a straight line (23-5A).

To avoid cutting the papilla when applied interproximally:

1. Use a rest or fulcrum to prevent snapping through the contact.
2. Pull the floss mesially (to clear the distal of a tooth) or pull distally (to clear mesial surface) to allow floss to be positioned on the side of the papilla (figure 23-5).

KNITTING YARN

I. Indications for Use

- A. For tooth surfaces adjacent to wide proximal spaces, dental floss is narrow and does not remove plaque efficiently.
- B. For mesial and distal abutments of fixed partial dentures and under pontics, using a floss threader (page 381).
- C. For isolated teeth, teeth separated by a diastema, and distal surfaces of most posterior teeth.

II. Technique

- A. Preparation of yarn: fold double about 8 inches of three- or four-ply smooth synthetic yarn and loop through about 5 inches of dental floss; tie the floss with one overhand knot.
- B. Insert floss through the contact area; draw the yarn into the embrasure (figure 23-6).
- C. Clean adjacent teeth separately with a buccolingual back-and-forth stroke; fold the ends of the yarn distally and then around mesially.
- D. For specific areas where a papilla may be high or access not otherwise sufficient for the wide yarn, the dental floss end of the combination can be used.
- E. Dentifrice may be used.
- F. For closed contacts, use a floss threader (figure 21-3, page 381).

GAUZE STRIP

I. Indications for Use

To clean proximal surfaces of teeth that are widely spaced or adjacent to edentulous areas. Gauze is too thick to pass through contact areas.

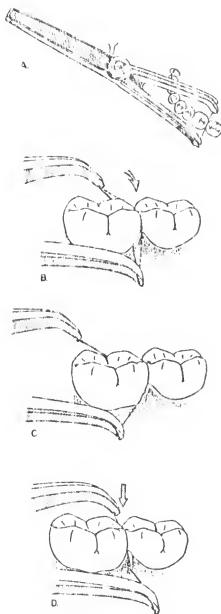


Figure 23-5. Use of floss holder. A. Applied interproximally. B. As floss is drawn through the contact area, the holder should be pulled mesially when the floss is to be applied to a distal surface (and pushed distally when applied to a mesial surface). C. Floss is lowered into sulcus. D. Floss cut in papilla, resulting from incorrect use.

II. Technique

- A. Prepare strip: cut 1-inch gauze bandage into a 6-inch length and fold in thirds or down the center.
- B. Position the middle of the gauze on the cervical area, next to the gingival crest and work back and forth several times, hold ends toward

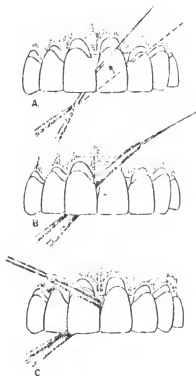


Figure 23-6. Use of linting yarn in open gingival embrasure. A. Yarn is looped through dental floss, and dental floss is drawn through the contact area in usual manner, as shown by arrow. B. Yarn is drawn through the embrasure. C. Yarn is positioned against the surface of the tooth for plaque removal.



Figure 23-7. Use of gauze strip for surfaces without contact with an adjacent tooth. A 6-inch length of 1-inch gauze bandage is folded in thirds and placed around the tooth with the folded edge over the cervical third of the tooth. A "shoe-shine" stroke is used to clean the surface.

distal to clean a mesial surface, and mesial to clean a distal surface (figure 23-7).

PIPE CLEANER

I. Indications for Use

Proximal surfaces when interdental gingiva is missing; furcation areas.

II. Technique

- One third of a regular length pipe cleaner is adequate at a time. Check wire end to prevent damaging the gingiva or scratching the cemental surface.
- Carefully work the end of the cleaner through the space with care not to press wire end into the gingiva.
- Work back and forth, pressing toward one surface and then the other.
- Furcation: slide pipe cleaner through between exposed roots of a furcation. Work back and forth (figure 23-8).

TOOTHPICK HOLDER (PERIO-AID)

I. Indications for Use

- Patient with Periodontitis: plaque removal at and just under the gingival margin; interdental cleaning particularly for concave proximal tooth surfaces (figure 23-9); exposed furcation area.
- Orthodontic Patient: plaque removal at gingival margin above appliance; cleaning around fixed appliances (figure 24-7, page 381).

II. Technique

A. Prepare Instrument

- Insert round tapered toothpick into the end of the holder. One type has angulated ends for use in various positions.
- Twist the toothpick firmly into place. Break off the long end cleanly so that sharp edges cannot scratch the inner cheek or the tongue during use.



Figure 23-8. Use of pipe cleaner in area between roots where furcation has been exposed.

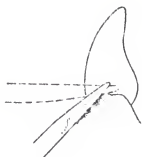


Figure 23-11. Balsa wood wedge. The wedge is used only when there are exposed proximal tooth surfaces and reduced interdental papillae. It is applied at an angle toward the occlusal or incisal to follow the contour of the interdental papilla. The broken line drawing shows horizontal positioning, which could flatten the interdental papilla if used regularly.

placing a finger on the gingiva convenient to the place where the tip will be applied. This will help to prevent inserting the wedge with too much pressure.

B. Preparation

Soften the wood; place the pointed end in the mouth and moisten with saliva.

C. Procedure

1. Apply base of the triangular wedge to the gingival border of the interdental area and insert with the tip pointed slightly toward the occlusal or incisal to follow the contour of the interdental gingiva (figure 23-11). When the wedge is held horizontally, the interdental tissue can be flattened.
2. Clean the tooth surfaces by moving the wedge in and out while applying a brushing stroke with moderate pressure first to one side of the embayment and then the other, about 10 or 12 strokes each.
3. Discard wedge after a few embayments have been treated or as soon as the first signs of splaying are evident.

INTERDENTAL BRUSHES

I. Types

A. Small Insert Brushes with Near-Lie Handle

1. A few nylon filaments are twisted into a

fine stainless steel wire for insertion into a handle with an angled shank (figure 23-12D).

2. The small tapered or cylindrical brush heads are of varying sizes approximately 12 to 15 mm ($\frac{1}{2}$ inch) in length, with a diameter of 3 to 5 mm ($\frac{1}{8}$ to $\frac{1}{4}$ inch).

B. Brush with Wire Handle

1. Soft nylon filaments are twisted into a fine stainless steel wire. The wire continues to make the handle, which is approximately 35 to 45 mm ($\frac{1}{2}$ to $\frac{1}{4}$ inches) in length (figure 23-12C).
2. The filaments form a narrow brush approximately 50 to 35 mm ($\frac{1}{4}$ to $\frac{1}{16}$ inches) in length with a diameter 7 to 8 mm ($\frac{1}{4}$ to $\frac{5}{16}$ inches).

II. Indications for Use

- A. Open interproximal areas.
- B. Exposed bifurcations or trifurcations.
- C. Plaque removal to supplement toothbrushing.

III. Technique

- A. Select brush of appropriate diameter.
- B. Moisten the brush and insert into interdental area or furcation at an angle in keeping with gingival form; brush in and out (figure 23-13).

IV. Care of Brushes

- A. Clean brush during use to remove debris and plaque by holding under actively running water.
- B. Clean thoroughly after use and dry in open air.
- C. Discard when filaments become loose or deformed.

SINGLE-TUFT BRUSH (END-TUFT, UNICU) D

I. Description

The single tuft, or group of small tufts, may be from 3 to 6 mm in diameter and may be flat or tapered (figure 23-12A and B). The handle may be straight or contoured.

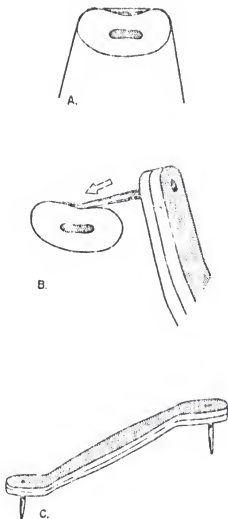


Figure 23-9. Cross section of mandibular first premolar at the cervico-enamel junction to show use of Perio aid on the concave root surface. A. Note inability of floss to remove plaque from the concavity. B. Perio aid is applied for plaque removal from facial and lingual. C. Perio aid handle angulated for adaptation of one end on facial and the other on lingual.

B. Application

1. Apply toothpick to the gingival margin. At a right-angle application, with moderate pressure, trace the gingival margin around each tooth.
2. To remove plaque just below the gingival margin, apply the end at less than 45 degrees, maintain the tip on the tooth surface, and follow around the sulcus or pocket (figure 23-10).



Figure 23-10. Perio aid applied subgingivally. Tip is placed on the tooth surface just below the gingival margin, and plaque is removed by moving the toothpick over the surface around the tooth. The toothpick tip should be moistened in water before use.

3. After the tip becomes frayed from use, it can be used as a small cleaning "brush" to rub on tooth surfaces where plaque has collected. It should be checked for loose bits of wood which might become deposited in the sulcus or gingiva.
4. For hypersensitive spots, usually at the cervical third of a tooth, the patient can use the tip daily to massage fluoride dentifrice for desensitization.

BALSA WOOD WEDGE

I. Description

The balsa wood wedge is a 2-inch long, wooden "toothpick," known commercially as the Stim-U-Dent. It is triangular in cross section.

II. Indications for Use

A. Application

For cleaning interdental areas where there are exposed tooth surfaces and missing interdental gingiva. There must be space, otherwise the gingival tissue can be traumatized and the teeth forced apart.

B. Limitation

As with most interdental devices, it is advised only for the patient who will follow instructions carefully, since tissue injury is possible and the use of the implement after the wood has splintered may force splinters into the gingiva.

III. Technique

A. Fulcrum (Rest)

First teach the patient to use the hand as a rest by placing it on the cheek or chin, or

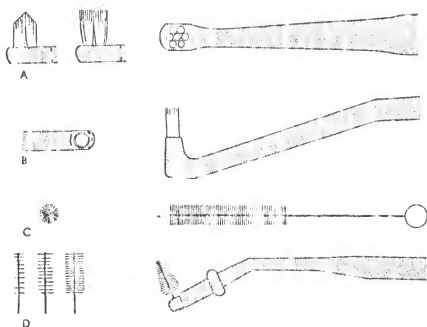


Figure 23-12. Interdental and single-tuft brushes. A. Single-tuft brush showing tapered and flat-shaped groups of filaments. B. Single-tuft brush on handle with angulated shank. C. Interdental brush with filaments twisted into a fine wire which outlines to make the handle. D. Insert brushes for a reusable handle with a contra-angled shank.

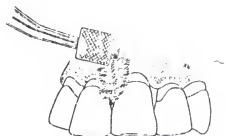


Figure 23-13. Use of interdental brush. Small soft nylon brush is applied for plaque removal from the facial, and may be applied from the lingual in open embrasures.

II. Indications for Use

- A. Open Interproximal Areas
- B. Fixed Dental Appliances

The single-tuft brush may be adaptable around and under a fixed partial denture, pontic, orthodontic appliance, and precision attachment.

- C. Difficult-to-Reach Areas

The buccal surfaces of the mandibular molars, adjacent teeth, the distal of the most posterior teeth, and teeth that are

crowded are examples of where an end-tuft brush may prove of value.

III. Technique

- A. Direct the end of the tuft into the interproximal area along the gingival margin.
- B. Combine a rotating motion with intermittent pressure.
- C. Use a sulcular brushing stroke.

INTERDENTAL TIP

I. Composition and Design

Conical or pyramidal flexible rubber or plastic tip attached to the end of the handle of a toothbrush, or on a special plastic handle. The soft, pliable rubber tip is preferred to the hard, more rigid plastic tip because it can be adapted to the interdental area more easily and because there is less pain or discomfort for the patient when the instrument is pressed on the tissue.

II. Indications for Use

- A. Cleaning debris and materia alba from the interdental area; by rubbing the exposed tooth surfaces, possible removal of some plaque.

- B. May contribute to reshaping of gingiva following periodontal surgery.
- C. Adaptation to areas where toothbrushing is difficult; for example, exposed furcation areas mesial of mesially inclined teeth, or abutment teeth.
- D. Contraindicated in clinically healthy gingiva with intact interdental papillae. Interdental devices are usually unnecessary and can be harmful.

III. Technique

The interdental tip is a difficult instrument to use correctly. Learning to use it may require more patience and time than the average patient will care to give. A mirror should be used to show the placement of the tip and the patient should use a mirror for home practice.

- A. Prepare for application: outside the mouth, hold the handle of the instrument firmly (a palm grasp may give best control), with the tip angled up for application to the mandibular and down for the maxillary arch.
- B. Insert the tip interdentally, diagonally toward the occlusal or the incisal to follow the contour of the interdental gingiva (figure 23-14).
- C. The tip is inserted until it fits the embrasure and touches the sides of the teeth, but it is never pressed forcefully. If forced repeatedly in a horizontal direction, the interdental tissue can be blunted or flattened by pressure, thus increasing the size of the interdental space.
- D. Press the side of the tip against the attached gingiva and apply a gentle rotary motion, which provides intermittent pressure against the gingival tissue (figure 23-15). The rotary motion is continued to a slow count of ten.



Figure 23-14. Interdental tip. The conical, flexible rubber tip is angled diagonally toward the occlusal or incisal to follow the contour of the interdental gingiva.

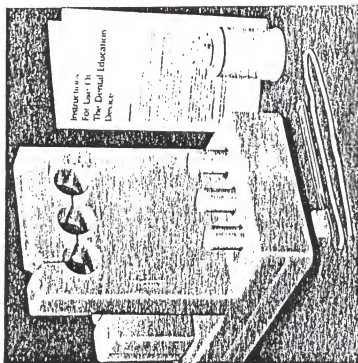


Figure 23-15. Interdental tip. The rubber tip may be indicated when interdental papillae are missing or reduced in height. The tip is inserted until it fits the embrasure and touches the sides of the teeth, but it is not forced interdentally. The side of the tip is then pressed against the attached gingiva and a gentle but firm rotary motion is used to apply intermittent pressure against the gingival tissue.

- E. When the interdental area is wide, press the tip against one tooth and the attached gingiva for a count of ten, and then slide it over to the side of the adjacent tooth.
- F. Repeat at next embrasure and on around the arch; apply to lingual when access and visibility permit.
- G. For additional cleaning of the proximal surfaces of the teeth, the tip may be rubbed against the teeth as it is moved in and out of the embrasure, and directed toward the part of the tooth surface under the contact area.
- H. Rinse the tip as indicated during use to remove debris, and wash thoroughly at the finish.

Butler Dental Health Education Teaching Aid

Instructions For Use



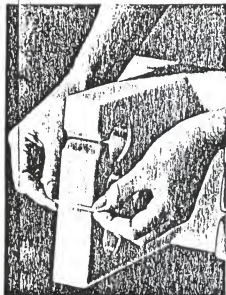
Introduction

This Teaching Aid was developed to serve two purposes. One, to teach flossing and proper brushing and two, to help explain difficult concepts about the nature, treatment and prevention of dental disease. It places the initial concept and skill of flossing in a setting outside the mouth where the person can gradually acquire the skill and understanding necessary for effective flossing and brushing. The frustration associated with beginning flossing can be minimized thus insuring that the person will continue rather than give up on flossing.

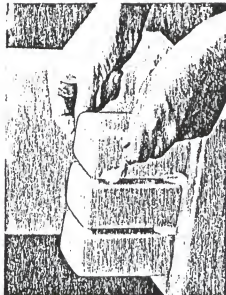
At the time of case presentation, time can be saved if the person is able to quickly grasp the disease processes and proposed treatments. This is especially a problem in explaining the need for periodontal therapy before restorative therapy. Difficult explanations such as the need for splinting or periodontal surgery can be demonstrated on the Aid thus saving time and making acceptance of needed treatment easier with the chance of misunderstanding reduced.

The following pictures and explanations will facilitate the incorporation of the Teaching Aid into your program.

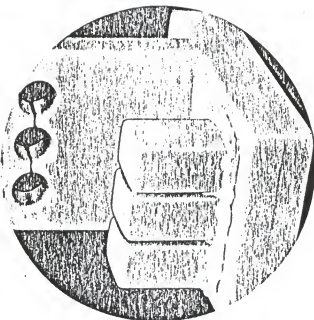
John O. Butler Company
USA: 540 N. Lake Shore Drive/Chicago, ILL. 60611
CANADA: 9715 Côte De Liesse Rd./Donval Q., H9P 1A3
SWEDEN: P.O. Box 29/31201 Laholm.



(2) With the string wrapped around each middle finger and held between the thumb and forefinger of each hand, the width of the upright part of the Aid serves as a measuring device to get the proper amount of floss between the fingers.



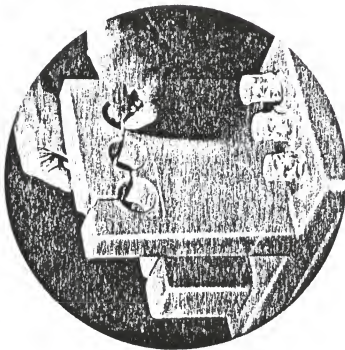
(3) The person can now go back and remove the cream from between the blocks. Evaluation should be made at this point to insure that these simple steps can be completed easily before going on to more difficult steps.



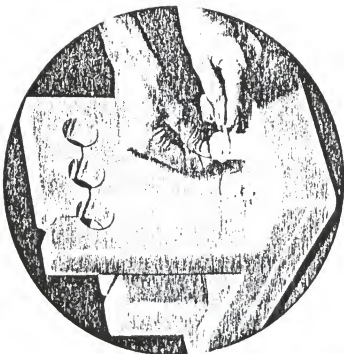
(1) Shaving cream is used to establish an analogy to bacterial plaque, explaining what plaque is and the relation between plaque, caries and periodontal disease. Shaving cream is placed on the blocks as shown in the picture with cream between the blocks as well. Cream can be placed on just a front surface and between two blocks to move more rapidly. The person is then given a normal size toothbrush and asked to completely remove the cream. The outside surface of the blocks can be easily cleaned but cream remains between the blocks thus demonstrating that just brushing cannot effectively remove all plaque.

A method to hold the floss now can be taught. A favorite way is to wrap the floss around the middle fingers of each hand, freeing the forefingers to manipulate the floss.

(4) Advise the person that an important part of flossing is to remove plaque without damaging tissue. To accomplish this it is important to ease floss through the contact point between the teeth. The string should bind slightly in the slot to avoid snapping through. The person is told to make several circuits around the holes always keeping the string in contact with the Teaching Aid. This requires the person to exercise some care and be precise with his motions, which is exactly what is desirable in flossing.



(5) By wrapping the floss around the curvature of the tooth the risk of tissue damage is minimized and plaque is more effectively removed. If the floss is held straight and the peg is flossed, notice how only a narrow band of cream is removed on the first peg. On the second peg the string is wrapped around the peg and a broad area of cream is removed. The person should now proceed to remove all the cream from the pegs. This part can be practiced until skill and dexterity are deemed sufficient. After all the cream that can be removed with the string has been removed, cream should still remain in the wells around the pegs. This cream can be used to demonstrate proper toothbrush angulation.

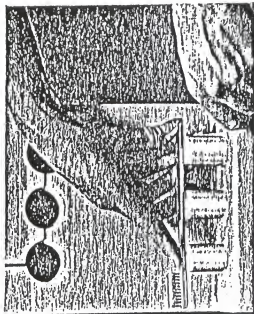
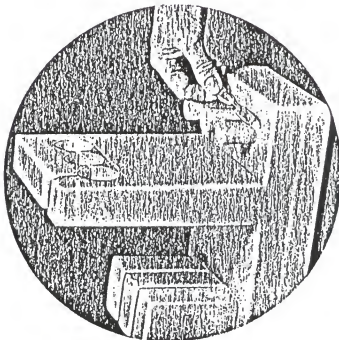


(6) Shows the correct Bass technique angulation for the bristles to reach into the wells to remove the cream.

The cream can be easily removed from around the first peg using correct angulation.

If the person has any pocket depth and you want to show the significance of this pocket depth, this can be shown around the second peg where the well represents a 4—5mm pocket. It can be shown here that even with proper angulation, cream remains in the well just as plaque will remain in the bottom of a periodontal pocket. This suggests that the aim of treatment to reduce the pocket to a cleansable depth.

If even deeper pockets exist the third peg can be used to illustrate advanced bone loss, yielding a 7—8mm pocket.



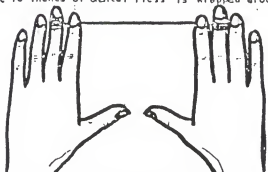
(7) The procedure of splinting a loose tooth to other stable teeth is shown.

At this point, if dexterity is deemed sufficient, the first experience with flossing in the mouth can proceed. If dexterity is deemed still inadequate, and a dentoform is available, some brief practice can bring skill up to a more acceptable level.

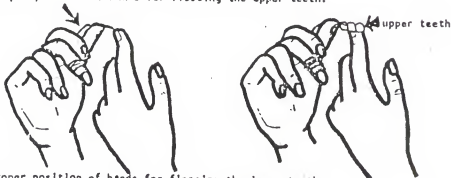
To reinforce and transfer what has been learned on the Teaching Aid the person should first take a real piece of floss and practice attaching it to the hands and getting the correct distance between the fingers. Next the Educator can demonstrate flossing in the person's mouth while the person watches with a mirror. Easing the floss through the contact points and wrapping the floss around the tooth should be demonstrated. A quick circuit of the person's mouth can be done to better demonstrate and reinforce the idea of flossing all teeth in a circuit. At this same time all contacts are checked to make sure that none are too tight for floss to pass and that the floss doesn't shred or tear anywhere. If any such areas are found they should be corrected to avoid frustration on the part of the person during the initial flossing experience. At last the person is allowed either to go home and practice or can demonstrate at this time if the concepts have been grasped. Checking can be done at subsequent appointments.

FLOSSING

1. About 18 inches of dental floss is wrapped around the fingers as shown below.



2. Proper position of hands for flossing the upper teeth.



3. Proper position of hands for flossing the lower teeth.



4. To clean the tooth, curve the floss around the tooth and move it up and down several times. Then curve the floss around the next tooth and repeat the process.



APPENDIX J

EXAMPLES OF APPOINTMENT NOTES AND SCHEDULED ACTIVITIES

The following are samples of the instruction-appointment cards given to each member of the experimental group. These cards were given following each meeting, both individual and group. They were generally written with bright colors on 3x5 file cards and had some type of dental caricature, either a stick-on or a drawing.

Name:

Date:

Morning:

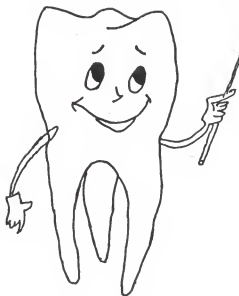
1. Dry brush

Evening:

1. Red Cote tablet
2. Dry brush and floss
3. Rinse well
4. Rub gel over gum line and use rubber tip to work between tooth and gum
5. Dry brush remaining gel over all teeth
6. Empty mouth but do not rinse

YOUR NEXT APPOINTMENT:

AT LEAST ONE TIME EACH DAY, DO THE FOLLOWING:



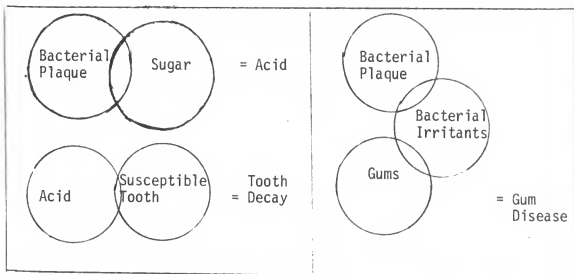
1. USE A RED COTE DISCLOSING TABLET
2. DRY BRUSH THOROUGHLY
3. FLOSS THE SIDES OF ALL TEETH
4. BRUSH THE GEL OVER ALL YOUR TEETH, ESPECIALLY AT THE GUM LINE
5. SWISH THE REMAINING GEL IN YOUR MOUTH FOR 1 MINUTE
6. EMPTY YOUR MOUTH, BUT DO NOT RINSE FOR 30 MINUTES

YOUR NEXT APPOINTMENT IS SCHEDULED

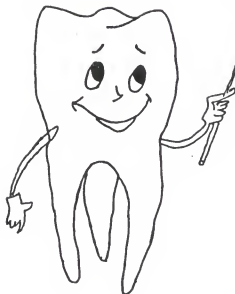
DATE:

TIME:

REMEMBER THE IMPORTANCE OF THE PLAQUE CHAIN:



AT LEAST ONE TIME EACH DAY, DO THE FOLLOWING:



1. USE A PEO COTE DISCLOSING TABLET
2. DRY BRUSH THOROUGHLY
3. FLOSS THE SIDES OF ALL TEETH
4. BRUSH THE GEL OVER ALL YOUR TEETH, ESPECIALLY AT THE GUM LINE
5. SWISH THE REMAINING GEL IN YOUR MOUTH FOR 1 MINUTE
6. EMPTY YOUR MOUTH, BUT DO NOT RINSE FOR 30 MINUTES

YOUR NEXT APPOINTMENT IS SCHEDULED

DATE:

TIME:

DENTAL PROGRAM TENTATIVE SCHEDULE

WEEK OF 3/11 TO 3/16

LOCATION: BOARD ROOM

3/11 (Sunday)	<u>INDIVIDUAL DENTAL INSTRUCTION</u>	<u>RESIDENT'S NAME</u>
	11:00 AM	
	11:15	
	12:00 PM	
	12:15	
	12:30	
	12:45	
	1:00	
	1:15	
	1:30	
	1:45	
	2:00	
	2:15	
	2:30	
	2:45	
	3:00	
	3:15	
	3:30	
	3:45	
	4:00	
3/12 (Monday)	<u>10:00 AM to 4 PM</u>	
	Staff exams & instruction (Please complete medical/dental history first. These forms are located in the Staff Lounge).	
	<u>NOON to 2:30 PM</u>	
	Medical/dental histories for new residents with Pat Braddock (Nurse's Office)	
3/13 (Tuesday)	<u>NOON to 2:30 PM</u>	
	Exams and individual instruction for new residents. Individual instruction	
3/14 (Wednesday)	<u>NOON to 2:30 PM</u>	
	Exams and individual instruction for new residents.	

Week of 3/11 to 3/16

3/15 (Thursday) 9:00 to 11:00 AM

Complete staff exams and instruction
exam

3/16 (Friday) GROUP INSTRUCTION

NOON - 12:45 PM

12:50 - 1:30 PM

1:45 - 2:30 PM

Resident's
Name:

APPENDIX K
PROGRAM EVALUATION QUESTIONNAIRE

FINAL ASSESSMENT QUESTIONNAIRE

DIRECTIONS: PLEASE CHECK THE APPROPRIATE RESPONSES

1. Please check which dental aids you are using and how often you use each.

	<u>USE</u>	<u>FREQUENCY</u>
TOOTHBRUSH	_____	_____
FLOSS	_____	_____
PROXYBRUSH	_____	_____
RUBBER TIP (STIMULATOR)	_____	_____
OTHER	_____	_____

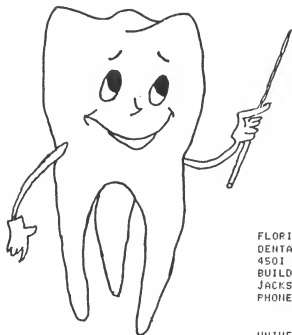
2. Are you using your gel? Yes ____ No ____
3. Do you feel that your oral hygiene skills have improved? Yes ____
No ____
4. Do you feel that you have benefited from the dental program?
Yes ____ No ____
5. What part of the program was most beneficial to you?
6. What part of the program was least beneficial to you?
7. Do you feel that using the gel has helped you? Yes ____ No ____
8. Do your gums bleed when you brush your teeth? Yes ____ No ____
9. Do your gums bleed when you floss your teeth? Yes ____ No ____
10. Do your gums bleed when you use the gel? Yes ____ No ____
11. What color is your gel? Brown ____ Clear ____
12. In what way would you change this dental health program?
13. Any other comments would be appreciated.

THANK YOU FOR YOUR COOPERATION AND PARTICIPATION IN THE DENTAL HEALTH PROGRAM!

APPENDIX L

DENTAL HEALTH RESOURCE INFORMATION

AT LEAST ONE TIME EACH DAY, DO THE FOLLOWING:



1. USE A RED COTE DISCLOSING TABLET
2. DRY BRUSH THOROUGHLY
3. FLOSS THE SIDES OF ALL TEETH
4. BRUSH THE GEL OVER ALL YOUR TEETH, ESPECIALLY AT THE GUM LINE
5. SWISH THE REMAINING GEL IN YOUR MOUTH FOR 1 MINUTE
6. EMPTY YOUR MOUTH, BUT DO NOT RINSE FOR 30 MINUTES

FLORIDA JUNIOR COLLEGE
DENTAL HYGIENE PROGRAM
4501 CAPPER ROAD
BUILDING A ROOM 320
JACKSONVILLE, FLORIDA 32218
PHONE 757-6471

UNIVERSITY OF FLORIDA
DENTAL CLINIC
1-904-392-4261

APPENDIX M
CERTIFICATE OF RECOGNITION

Certificate of Recognition

*is awarded this certificate of Notable
Accomplishment in Recognition of*

PARTICIPATION IN THE PROGRAM ON DENTAL HEALTH INSTRUCTION IN ORAL HYGIENE

This 31st *day of* MARCH, 1984

Signed Harold L. Weaver, R.D.H., M.S.

APPENDIX N

FOLLOW-UP LETTERS OF CORRESPONDENCE

May 15, 1984

Dear

On behalf of the University of North Florida and Gateway Community Services, I would like to thank you for your recent participation in the Dental Health Education Program. Your cooperation indeed made this a successful study.

I originally explained to you that upon completion of the study, I would notify you regarding the content of the gel you were given to use. The clear gel contains the .04% stannous fluoride solution and the brownish-tan gel is the placebo, containing no fluoride.

According to my records you were given the brownish-tan gel which does not contain the stannous fluoride. I would like for you to have a container of the 0.4% stannous fluoride gel. In order for me to send you a container of fluoride gel, I need you to call Dr. Dwight Hines at 268-6772 to confirm your correct mailing address. If you are unable to reach Dr. Hines, please leave a message with the receptionist at Gateway.

I would like to encourage you to use the fluoride gel and to continue with your daily oral hygiene home care for optimum dental health.

Again, my sincere thanks for your cooperation in the oral hygiene instruction program.

Sincerely yours,

Sharon T. Weaver, RDH, MHS

STW:dls

cc. Donald B. Bartlett, Executive Director, Gateway Community Services
Dr. J. Sample Magee, Medical Director, Gateway Community Services
Dr. Dwight Hines, Program Evaluator, Gateway Community Services

May 15, 1984

Dear

On behalf of the University of North Florida and Gateway Community Services, I would like to thank you for your recent participation in the Dental Health Education Program. Your cooperation indeed made this a successful study.

I originally explained to you that upon completion of the study, I would notify you regarding the content of the gel you were given to use. The clear gel contains the 0.4% stannous fluoride solution and the brownish-tan gel is the placebo, containing no fluoride.

According to our records, you were given the clear gel. This, of course, means that you have been using stannous fluoride for the past ten weeks. I would like to encourage you to continue both the use of this gel as well as your daily oral hygiene home care for continued optimum dental health.

Again, my sincere thanks for your cooperation in the oral hygiene instruction program.

Sincerely yours,

Sharon T. Weaver, RDH, MHS

STW:dls

cc: Donald B. Bartlett, Executive Director, Gateway Community Services
Dr. J. Sample Magee, Medical Director, Gateway Community Services
Dr. Dwight Hines, Program Evaluator, Gateway Community Services

APPENDIX O

DAILY CASE LOG OF THE DENTAL STUDY

Daily Case Log of the Dental Study

On February 27th I spoke with the residential treatment coordinating supervisor and confirmed that the program would begin on March 4th. He agreed to announce the program format to both the counselors and the residents on March 1. I spoke with the coordinator again on March 2 and he assured me that all staff had been notified and that all residents would be notified that I would be there on Sunday, March 4, to complete patient health histories. He gave me the name of the weekend counselor and said the counselor was aware that I was coming at 9 a.m.

Upon my arrival on March 4th, I met with the weekend counselor. While he knew to expect me, he said he did not know about the dental program or my plans for the day. He agreed to gather the residents and have them see me to complete the personal health histories. We talked for a short while about the program and I encouraged him to participate. He said he was being transferred to the outpatient component, but that he would try to come back for a dental examination.

Soon the first resident came by. I believe the location facilitated my seeing so many people this first day. I was located in an end room which overlooked the central groups and was in the major traffic area. Since the facility had originally been a motel, the room had double glass doors and faced the pool area where many residents gathered to visit. Sunday is an open day with no scheduled meetings and the residents used this free time to relax and to have family visits depending on their level of progress in the treatment program.

I was able to complete patient histories on 18 residents. Of those that I saw everyone agreed to participate in the study except one. As the result of a fight, this individual had two front teeth missing. She told me that her counselor said a dentist was coming to fix everyone's teeth. When I told her that I could not do crowns or fill teeth, but felt she would enjoy and benefit from the program she said she was just not interested. She said the only important thing to her was to get out of "this place," but if she could have free dental work to fix up her mouth then she expected it to be done that day. I had her sign a consent form indicating that she did not want to participate and I told her I would check with her later in the week to see if she changed her mind. I reinforced that she could participate at a later time if she so desired.

Several other residents stated that they had been told the mobile dental clinic would be at the facility on Monday, March 5th, and that they could have all their dental work completed. Following an explanation of the instructional program, everyone else I interviewed wanted to participate in the study.

I saw one male who was edentulous but he wanted to complete the health history and have the oral cancer examination. I completed the personal, medical, and dental history and told him I would do the oral cancer examination in the dental clinic the next day.

I stayed for the evening meal with the residents. During this time I spoke with several residents about their treatment program and the benefits of the dental instruction. I also used this opportunity to formally introduce myself and to make a public

announcement explaining the program. I encouraged everyone to participate in the study and answered questions about its purpose and scope.

The day was long but, despite the obstacles, it went quite well.

Monday - March 5

I arrived at the treatment facility at 9:30 a. m. Client 3 greeted me at the entrance with the news that the young girl who only wanted to have her teeth fixed had "jumped the wall" with a male resident late Sunday evening. He explained that this meant she had skipped out of treatment. The counselors refer to this as leaving against medical advice (AMA).

The executive director had agreed that I could conduct the initial examinations from 10 a.m. to 4 p.m. After completion of all the examinations, instruction would need to take place from 11:30 a.m. to 2:30 p.m. during the residents' daily free time.

When I entered the staff lounge I was told of problems with the dental equipment. A leak in both the air and water lines could hinder efficiency. I immediately placed a call to Florida Baptist Convention, owners of the equipment, to get authorization for the maintenance technician at the treatment facility to work on the leaks. The agency granted permission and the technician was able to get both air and water, but at a slower rate.

Two volunteers from the Baptist Convention came to assist me and to hand out religious literature. This was one of the contingencies of their Christian ministry for using the mobile dental

unit. The administrators of the facility had granted permission for this function and the volunteers spent approximately 30 minutes discussing their planned activities with the coordinating supervisor. These two female volunteers initially helped me to locate the residents who had completed the patient histories on Sunday. They then sat at a small table outside the dental clinic and had the residents sign the consent form required by the Convention to use the mobile dental unit. They used this time to talk with the residents who were waiting for their examinations.

A graduate assistant from a local university had volunteered to help with the study. I had reviewed the project format and instructed her on how to use the personal, medical, dental history forms. She completed health histories on other residents while I conducted the examinations. She also distributed and collected the consent forms and patient histories from the employees who wanted to participate in the study.

During the middle of the day the supervisor told me that I would need to move the instructional part of the program to an upstairs conference room at the rear of the facility where the female residents' rooms are located. A handicapped female was entering treatment that day and she would not be able to share the quarters normally assigned to females because of the stairs. The assistant from the university and Client 8 moved all the dental materials for ms.

The examinations went smoothly. Each complete examination and indices scoring took approximately 30 minutes. I did not give

instruction but did show each resident problems areas in the mouth. I told each one that the person would receive a container of gel on Wednesday from either the staff nurse or the program evaluator. I reiterated that neither of us would know who had received the fluoride gel until the completion of the study.

Tuesday, March 6

Today was basically a repeat of Monday. I continued to conduct the oral examinations while the graduate assistant completed the patient histories on those residents who still wanted to participate in the study.

Additional problems occurred with the dental equipment. They could not be repaired by the facility's technician so the liaison from the Baptist Convention called a dental technician who agreed to make the necessary repairs early Wednesday morning. This meant that I had to work without air or water syringes; however, I could get water in the basin. In order to continue with the examinations, I used hand air and water syringes. While this slowed the process, it did not prevent me from completing the examinations.

I examined Clients 4 and 5 who were commencing this week so I decided to put them in the control group. I explained that in 3 weeks I would complete a final assessment on each of them while they were staying at the halfway house. Both individuals readily agreed.

The remainder of the day went smoothly and I was able to complete examinations on 10 residents and 3 employees. Due to the intensity of the schedule I had a limited amount of time to

interact with the residents other than to answer questions they posed about their dental health.

At the end of the day, I again went into the dining area to talk with people in an effort to become better acquainted and to further explain the dental program. I made another public announcement about the dental program and answered several questions about participation in the study. I also used a short time during lunch to talk with the staff members and other employees to encourage their participation.

Wednesday, March 7

The dental technician did not arrive until noon. He stated that the unit would take several hours to repair and that he did not have the required parts with him. He remembered me from one of the dental offices where I had worked, and after I explained at length the importance of the study, he agreed to repair the unit temporarily with the equipment he had with him. The repairs took about an hour and in the interim I continued to complete examinations by using hand syringes. By early afternoon I once again had use of the unit's air and water syringes but the air conditioning in the dental unit went out. The remaining 3 hours were hot and sticky but with the cooperation of everyone I completed all the examinations by 4:30 p.m. so that the mobile dental unit could be returned to the Baptist Convention as originally scheduled.

Before leaving for the day, I posted a list of individual appointment times for instruction on the glass door of the staff lounge. All pertinent announcements are posted in this area. In

the staff lounge, I posted a sign-up sheet with available time slots for staff who still wanted to participate in the study.

Thursday - Friday, March 8 - 9

Both resident and staff participants were given the containers of gel to use. These containers were coded and randomly assigned by the program evaluator. I had no knowledge concerning the assignment of the gel. Everyone was again told not to use the gel until individual instruction was given the following week.

I spent the remainder of Thursday and all day Friday visiting with the residents and facility employees. I was able to complete dental examinations on those employees who had agreed to participate in the study. These examinations were conducted in the upstairs conference room where all the dental instruction was to take place.

There is an area at the treatment facility known as the "fishbowl." It is a glass enclosed social area for clients. This area is easily viewed by treatment team members and evaluations of clients' progress are partially determined by the social interaction that takes place in the "fishbowl." I spent my spare time mingling with the clients in this area. This gave me the opportunity to also talk with those individuals who had decided not to participate in the study. I was able to encourage several more residents to enter the program. I learned that those individuals who were in the dental study had already become strong advocates as they introduced me to those people I did not know. In my conversations, I also found that study participants had been urging other people to participate telling them how much they had learned before the instruction had

even started. Residents presented many questions about alcoholism while I participated in some of the board games. I had become known as the dental lady who was also a teacher and substance abuse counselor.

On Friday I attended the commencement ceremony and was reminded again by Clients 4 and 5 that they would be using the gel and looked forward to seeing me at the halfway house in 3 weeks.

Monday - Thursday, March 11 - 15

It took 4 days to complete the individual instruction for all the residents. Even though this part of the program involved only plaque disclosure and brushing instruction, clients had many questions.

I initially asked residents which type of brush each had been using and how often they brushed their teeth. Out of the 26 residents, 20 were using the hard toothbrushes given to them at the detoxification center. With regard to frequency of brushing, more than half of the residents stated that they did not brush their teeth when they were drinking heavily. When sober, 14 individuals told me they brushed as often as five times a day. The other 12 stated they brushed between one and three times daily. I had each resident use a "red cote" disclosing tablet to demonstrate where the plaque was located in the mouth. Residents then used a Sub-G toothbrush to show me how they brushed their teeth. Over 80% of the residents used a combination up-down, scrub brush technique. I demonstrated the Bass sulcular brushing technique both on a dentoform and then in the patient's mouth. Following this demonstration, I had each resident return demonstrate until they felt comfortable with the method. I told each person to use the following daily routine:

(1) in the morning, put a small amount of toothpaste on the brush and use the sulcular brushing technique; (2) in the evening use the red cote tablet before brushing and, using a dry toothbrush, remove all the red stain with the same brushing technique; (3) cover the head of the toothbrush with the gel, brush it on the teeth by again using the sulcular method; and (4) swish the remaining gel in the mouth for 60 seconds, expectorate but do not rinse for 30 minutes. Every individual expressed shock when I told them that toothpaste was basically ineffective because its use tended to decrease brushing accuracy and frequency. Many were equally shocked when I explained the necessity of tongue brushing to reduce bad breath.

During these 4 days, I also gave complete oral hygiene instruction (OHI), including flossing, to staff members. I had staff members substitute a different compound for the toothpaste used in the morning. This compound is a mixture of $\frac{1}{4}$ teaspoon salt, 1 tablespoon baking soda, and a capful of 3% peroxide. I gave the staff the following instructions: These ingredients are mixed together in a small disk. The mixture is then smeared across the necks of the teeth in a $\frac{1}{4}$ section of the mouth. This is accomplished by using a finger or the rubber tip stimulator. The rubber tip is then used to work the mixture into the gum crevice as far as possible. This is done throughout the entire mouth, both on the cheek side and the tongue side. Following this procedure dip a wet toothbrush into the remaining mixture and brush as usual. Be careful not to scrub as the roughness of the baking soda may cause burning of the gums.

Both residents and staff received written instructions at the conclusion of the oral hygiene session. Residents were also given an appointment card. Cooperation was excellent during this phase of the program, and everyone appeared enthusiastic. I told all that I would maintain an open-door policy and that they were free to come see me at any time for additional help.

Friday, March 16

Today I held two group sessions. Each group had 13 participants. One session lasted 1½ hours, the other, 2½ hours. The second group stayed longer because a counselor informed us that the 2:30 p.m. therapy session had been cancelled and residents could use the additional time as they chose. It was interesting that during the last 30 minutes, 5 members from Group 1 joined our discussion.

I had Client 1 find everyone in Group 1 for the discussion meeting. He told me that Client 2 wanted to quit the dental program because he was depressed about his treatment and had recently had an argument with his primary counselor. I talked with Client 2 and encouraged him to reconsider and come back the next day. One of the other group members had gone AMA early that morning.

Since people entered the room at different times, I opened discussion with some general questions. After I asked each question, I attempted to get each resident to respond in some way. The following is a list of the questions I presented for discussion: Why are you in the dental program? What do you hope to gain from the program? How do you feel about the program so far? Are you comfortable having to come every day for instruction? How does

your mouth feel? How do you feel about yourself? What do you plan to do when you finish treatment? Do you want to pursue additional dental care? Do you know why some people chose to not participate in the dental program?

For the most part the responses were positive. All wanted to stay in the program. They felt it would benefit them and they wanted to learn more about their mouths. They felt that while drinking they had neglected their mouths and that they would end up having to have all their teeth extracted. They thought no one really cared about them. They did think that the appearance of their mouths and especially their breath was important to overall appearance, getting a job, meeting new people, and making friends. About all felt self-conscious about how their teeth looked.

One of the female residents (#7) asked how I felt about them and how they were selected for this program. I told them that I did not see the severe negative dental conditions I had expected to see and that the primary problem was gum disease which I frequently saw when I was practicing dental hygiene in a private dental office. I did see the need for extensive dental work, especially oral prophylaxis and dental restorations. I discussed my background as a dental hygienist, substance abuse counselor, and health educator. I again explained the dental project as my doctoral study and why it was taking place now. I also told them that I hoped grant money would be available to initiate dental care as an ongoing program in alcoholism treatment.

When asked about future dental care for them, I recommended the dental hygiene program at a local junior college and possibly the dental clinic at the University of Florida for follow-up care. I told them I would provide the names of contact people at these facilities.

Prior to starting the instructional program, I asked how they felt about me. Several female residents (7, 9, and 26) admitted they were initially unsure of my motives, and thought I might look down on them because I had not experienced a drinking problem and obviously took care of my oral hygiene and general appearance. After getting to know me for several days, they felt I was really sincere and demonstrated a warmth and caring they had not anticipated. One female stated she felt somewhat jealous at first but now felt she wanted to use me as a role model. She was shocked to find out I was older than she because everyone had decided I was much younger and could not relate to typical female problems, especially single parenthood. Client 7 asked if I would spend some time with her discussing her situation as a single parent. Client 9 wanted me to show Client 8 (the resident barber) how to cut her hair so it would look like mine. Other residents said they felt very comfortable with me, that my motivation and enthusiasm were contagious, and that they wished I was a permanent member of the staff.

During open discussion, Client 23 said his brush was too soft and he had gone back to his old brush and brushing style. Several members of the group immediately jumped on him and Clients 15 and

12 went over and showed him the new method again. Client 10 said the new method was too much trouble and it took too long. Again, the group reinforced the need to practice. I gave Client 23 a Butler #411 brush to try and Clients 3, 14, and 26 also wanted the different brush.

I had each resident work with a partner and do brushing demonstration/return demonstration. While this was being done I went around to check on everyone. During this time, four people said their gums stopped bleeding and their mouths felt better. Three people said their gums were sore. I showed all how to massage their gums by using thumb and forefinger.

Following this exercise, I presented a short dental lecture. I used visuals and demonstration models to discuss the following topics: tooth structure, the decay process, periodontal disease process, the plaque cycle, the need for adequate oral hygiene, the effect of nutrition on oral status, malocclusion, dental restorations, and the diagnostic use of X-rays. During the course of the presentation, I used probing and prompting techniques to elicit questions. Most of the information I presented was new information and the questions were numerous.

I then conducted a demonstration using the Butler educational block. I showed the sulcus depth, how plaque gets trapped, and how to angle the brush into the gingival crevice. I used shaving cream and had each participant practice the brushing technique. Most were fascinated and wanted to try. Client 3 dozed off.

Following this practice exercise, I briefly introduced the flossing technique. I used visual aids depicting the before and after use of red cote tablets and flossing.

As each resident in Group 1 left, I gave an appointment card with dental instructions and three dental pamphlets, "Diet and Dental Health," "Do Your Gums Bleed When You Brush Your Teeth?" and "Cleaning Your Teeth and Gums."

Several Group 1 members stayed when the Group 2 members joined. Client 21 asked about nutrition and sugar and we spent about 10 minutes on this topic. He also asked about his desire to quit smoking. He had been told by the staff nurse to not try to quit at this time since one addiction was enough to conquer for now. She had told him to wait at least 2 years before attempting to quit smoking and he wanted to know if I agreed. This prompted several more questions so I spent some time talking about the addiction process.

During the initial discussions, I was again asked why I was doing all this for a group of alcoholics. Client 6 said the people in the halfway house had heard about the dental program and said they wished they had been in treatment when the dental program was available so they could participate. They also wanted to know if I would go to the halfway houses and do the instruction for them. I was also asked why I was only staying for 3 weeks because they wanted me to stay longer.

During this session Client 17 asked about using a water pik. She said she would have her son buy one for her if it would help. I explained that the water pik could be an added benefit but not a substitute for the brush or floss. I also emphasized the need to use it on a low pressure to avoid tissue damage.

When I asked this group why other residents did not participate, several said it was because the program had not been explained correctly to them until the first day I came. They thought they were going to get complete dental care including fillings and so forth. They felt I should have been the one to initially explain the program. Several also felt they were forced to participate and were initially resentful until they really got involved.

During the extra time I had with this group, we talked about their personal lives and plans for the future. Client 21 asked me about his sponsorship in AA; Client 8 asked about vocational training as a barber; Client 1 discussed his children's drug addiction. Client 15 talked about his wife's battle with and death due to cancer. Client 24 talked about pursuing a master's degree and getting a job as an accountant. Client 3 came back into the group and gave me an apple. He also asked if I could come to their group picnic the next week.

Monday - Thursday, March 19 - 22

Client 1 told me he had his molar extracted in accordance with my recommendation. He said the oral surgeon told him to have all his teeth extracted because he was eventually going to lose them due to neglect. He said he replied with a big "NO" because he was receiving excellent instruction on how to take care of his teeth now and he planned to follow through by having a thorough cleaning and he intended to keep his teeth as long as possible.

Three new residents entered treatment and wanted to participate in the dental program. I completed patient histories, the dental

examination, and total instruction to bring them up to the current phase of the program.

I spent approximately 30 minutes with each resident. We discussed the need to use dental floss or some other aid to clean between the teeth. I used demonstration/return demonstration with floss and again with the toothbrush. I worked with residents until each could demonstrate adequate ability. I had them use the dentoform, Butler educational aid, and then demonstrate floss use in their mouths. Each person was given a roll of dental floss. Client 11 was instructed only with the rubber tip since his physical handicap prevented him from using dental floss.

Client 22 is no longer in treatment. He was put back in jail for a previous assault charge. Client 18 said he could not understand why because Client 22 had spent 21 days in "Detox" before there was a bed available and he had just come into treatment.

Each client was given another instructional card and an appointment date for group instruction on Friday.

Friday, March 23

Today I held three group sessions with 6 to 8 people in each group. Client 3 dropped out of the dental program because he felt the instruction was below him. He told Client 8 that he had received all this information when he was in the VA hospital. Client 2 was still depressed over his disagreement with his counselor and did not want to be around people.

Those who attended were cooperative but I sensed boredom and resentment about too much repetition. I changed the format by

spending a short amount of time on brushing and flossing by demonstration with the dentoform and Butler teaching aid. Following a question-and-answer session, I demonstrated the rubber tip simulator and the proxybrush to everyone in the group. Those individuals who had sufficient space between their teeth were given a proxybrush, individual instruction, and demonstration/return demonstration. I gave everyone in the group a rubber tip simulator.

During the remainder of each session, the residents worked with each other in a demonstration/return demonstration exercise while I observed and reviewed their use of the brush, floss, stimulator, and proxybrush.

As each resident left, I gave out a reminder card for the next appointment. I also gave instructional sheets reviewing all the procedures covered.

Monday - Tuesday, March 26 - 27

I held small-group discussion and instruction primarily to review procedures and to answer questions. Despite the appointment cards and posted schedule, several residents did not come to the meetings.

I saw Clients 3 and 2 outside and asked them to come by to talk. Client 3 came upstairs with me and I spent 20 minutes discussing the program with him. He said he was so busy because of the phase of his treatment program that he did not feel the dental instruction would help. He said he would prefer more individual instruction on the new techniques. He also stated that the dental program would be better for new residents since they had more free

time and less homework from the treatment counselors. He said he would cooperate with the dental program as much as possible. I did demonstration/return demonstration with the rubber tip. He said he was impressed and wanted to take one of the appliances to use. Later in the afternoon he brought me an apple and told me I should take a break.

Client 2 came by and apologized for missing the previous sessions. He said he was "down about lots of things" but wanted to get involved again. His roommate had showed him how to floss and he demonstrated for me that he could adequately use the dental floss. I instructed him on the use of the stimulator and he worked with it until he could demonstrate efficiency.

I told all who attended the group sessions to spread the word that I would show two films on dental care the next day. I also asked the counselors to encourage everyone to view the films.

Before leaving for the day I was told that Client 27 had gone AMA. He told his roommate that he was taking all his dental aids and wanted to know if he had fluoride or the fake.

Wednesday, March 28

Client 8 helped me move the projector to another room. He also told everyone about the films and encouraged them to attend. Fourteen people came by and viewed the flossing film. We had a short discussion and several residents said the film reinforced what I had been saying, and seeing it made it easier. They practiced flossing while I attempted to set up the video cassette on periodontal disease. At first I could only get sound but when I

finally managed to get a picture, I lost the sound. Everyone offered advice and took part in trying to get the machine to work. After many frustrating attempts, I decided to wait until the next day to show the video. Several clients told me that they really learned from the flossing film; however, the reason they enjoyed the session, they said, was because they got a kick over the way I handled my frustration with the video cassette machine.

Later in the day, I evaluated new incoming residents for the control group. I only did the patient health history and oral examination. I told residents that each would be given a container of gel and that neither of us would know who received the fluoride. I gave them orally the same gel instructions that were printed on the containers and I told them to continue their normal brushing habits.

Thursday, March 29

Another attempt to use the video cassette failed. I had the counselor who routinely uses this machine try to get it to work but neither of us could get both a picture and sound. (I later checked the video on another machine and was unable to get it to work.)

Since 16 people had come by to see the video I decided to do a simulation exercise. I had some members of the group act the role of "teeth" by standing together to demonstrate that all teeth together are more efficient than one standing alone. We talked about why people should avoid losing teeth. I used a broom and had other participants sweep around the human teeth to demonstrate sulcular

brushing. The floor represented the gum line and the participants could see how "dirt and dust" or plaque accumulates around the teeth. After a thorough sweeping, I asked the "teeth" if any places were missed by the tooth brushers. Client 25 said the sides had not been cleaned. I had another group of participants use a belt to demonstrate the flossing technique. Moving the belt back and forth on the "teeth's" legs showed both the necessity of flossing and the need to floss carefully. One "tooth" complained that his legs were chaffed by the belt.

This exercise took approximately 1 hour, with everyone exchanging roles. The demonstration was followed by a question-and-answer period. The people who participated said they never thought cleaning teeth could be so much fun and a good learning experience at the same time.

I gave each of them an appointment card and explained that it was important that they keep these appointments. I also posted an appointment list on the staff lounge door.

I evaluated another group of new residents for the control group. During this time Client 3 stopped by to talk with me. He asked me about his flossing technique and then said he just wanted to talk. He wanted to know if I thought he should go into vocational training or return to work as a cook. He asked if I was going to the picnic so I could sample all the dishes he was making for the outing. Client 26 stopped by and asked me to review use of the rubber tip stimulator again. Client 12 came in with a toothbrush in his mouth and told me he had really mastered brushing but the flossing was impossible. He agreed to substitute the rubber tip stimulator for dental floss.

Friday, March 30

I went to the halfway house and completed the final assessment on the two residents who were in the control group. Following the final assessments, I gave them complete Oral Hygiene Instruction (OHI) and the necessary dental aids to use.

Saturday, March 31

Before I began the final assessments, I had each resident complete a program evaluation form. I had to read and complete the form for three residents who could not read. Several residents asked if they could put their feelings about me in the comment section of the form. I told them to put exactly what they felt on the forms. I recorded oral comments to see if these also showed up on the written forms. In most cases the residents spoke more freely than they wrote. The oral comments included such statements as, "I wish they would have this program all the time with someone who looked like you but was single" (Client 18). "The best part of the program was looking at you" (Client 25). "You always look so good and dress so neat, I look forward to seeing you" (Client 11). "Your kindness and caring made me feel good about myself" (Client 15). "You were a good model for me as a woman" (Client 13). "I knew you really cared about me" (Client 24). "You really know your stuff and how to teach it" (Client 12). "I'm glad you talked me into staying in the program because then I knew you cared" (Client 2). "You really are a counselor" (Client 21). "You made me think about myself as a worthwhile person" (Client 20).

Some made oral comments on the program. Client 3, "The program took too much of my free time. It would be better for someone who

is just starting treatment and has more time." "I felt you talked too elementary for me but that the others had a problem catching on so I didn't really mind" (Client 11). "I was sold on the gel from day 1. It automatically made my gums stop bleeding" (Client 15). "Now I feel like I can smile again" (Client 21).

I conducted another oral cancer examination to check for any tissue changes. I made two referrals for further diagnosis; on one resident, it was the second time I had made the referral. He said he was told nothing could be done now. I later checked with the staff nurse on three referrals (one from the control group) to see why follow-up had not taken place. After I again explained that the areas that needed to be checked were soft tissue lesions, not tooth decay, she said she would have the staff physician do a further evaluation.

After the oral cancer examinations, I completed the plaque and gingival exams and recorded the scores on separate forms. In order to avoid bias on the scoring procedure, I made no reference to the initial assessment scores.

Depending on need and interest level, I gave each resident additional dental instruction. I showed each person where the plaque still remained in the mouth and explained how to remove it. I again used the demonstration/return demonstration technique.

Visually most of the residents' results looked good. Others, however, looked like they were not using any of the dental aids. Approximately 30% of the participants told me they were not flossing but were using the stimulator daily. Many of the residents also stated that they had not used the gel daily. Client 19 said

he was not following the exact directions and felt he should return the dental aids. I checked his mouth and his home care was fair. I encouraged him to keep working and told him that he could keep the dental aids. He appeared excited and said he would try harder.

Client 22 was back in treatment and asked me if he could continue in the dental program. He said he had been working on his oral hygiene and did not want to miss out. I reviewed the Oral Hygiene Instruction (OHI) with him and scheduled him for another appointment.

Upon completion of the final session, I gave each resident an instructional/resources card. I also gave each a certificate of recognition. I explained that the certificate was for their effort and participation in the program and a means to show my appreciation. Client 20 told me I had made his treatment program really meaningful. Many other participants stated that they should be thanking me for all my help and that they were glad I had conducted the study while they were in treatment. I told them to display their certificate where they could see it and to remember that if they heard a distant voice say, "Brush and floss your teeth and you will keep them longer," it would be me.

I had residents complete address file cards so I could notify each about the gel. I told them that they could expect a letter about the middle of May.

Tuesday, April 3

I spent 4 hours at the treatment facility. I was able to evaluate the one member of the experimental group who had not been

available on Saturday. I also evaluated and completed instruction for two more staff members.

Because of a mix-up in communication, the orientation counselor had not talked with or scheduled any of the new residents for the dental program. I was able to evaluate only two new residents. I worked with Client 22 again and his oral hygiene status looked good.

The orientation counselor told me that this week was confusing because the annual picnic was scheduled for the next day. I agreed to wait until the next week to continue the control group assessments. I also learned from this counselor that three control group members had gone AMA.

Before I left the facility, four of the residents saw me and asked if I would be able to go to the picnic. I told them that I had hoped to go; however, I had a family medical situation that would prevent me from being out of town for an entire day.

Tuesday - Wednesday, April 10 - 11

I called ahead to confirm with the orientation counselor that I would complete assessments on new residents this week. As a result of our conversation, scheduling was much more organized.

I evaluated six new residents each day. I did a complete examination and gave instruction on only the use of the gel. I advised each person to continue normal dental care routine with the addition of the gel component in the evening. I answered all questions except those that were directly related to instructional techniques. I spent approximately 30-45 minutes with each individual.

Monday - Thursday, May 7 - 10

I had arranged to have the mobile dental unit to conduct the final assessments for the control group. Due to mechanical problems the van was 3 hours late. On the first day I had another dental hygienist randomly examine patients in order to determine inter-rater reliability. This took most of the morning. I again had trouble with the mobile dental unit. The air conditioning system was malfunctioning so I could use only one of the dental units. While this was not a major problem, it did slow down my progress. Also, I did not have volunteers from the Convention so I was dependent on the graduate assistant to help me locate the members of the control group.

I used approximately an hour with each resident to do the final evaluations and to complete the oral hygiene instructions. Each resident was given the indicated oral physiotherapy aids as well as written instructions, resource card, and other handout materials. I also evaluated the two staff members who began the program with the resident control group. I noticed an interesting phenomenon with one of the staff members. In his original examination he had spontaneous bleeding but relatively adequate oral hygiene. In the final assessment, I could not produce bleeding even upon probing and he had greatly reduced his plaque index. He told me that he had faithfully followed my instructions and that for the past 3 weeks he had daily used both the peroxide-baking soda solution and the gel. Later evaluation revealed that he had been assigned the fluoride gel.

At the conclusion of the final examinations, staff and residents who were still in treatment were told who had received the placebo. I gave each individual who had used the placebo a container of 0.4% Omni gel stannous fluoride. The following week I sent letters regarding the fluoride to each member of the experimental group. Those individuals who contacted the treatment facility were sent a container of Omni gel fluoride.

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BIOGRAPHICAL SKETCH

Sharon Tamargo Weaver was born in Jacksonville, Florida, where she was graduated magna cum laude from Bishop Kenny High School. She received a Certificate in Dental Hygiene from Loyola University of the South in New Orleans and both a bachelor's and a Master of Science in allied health services degrees from the University of North Florida. She has a teaching certificate in health education and is a state certified substance abuse evaluator and instructor.

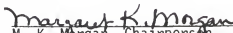
Ms. Weaver practiced dental hygiene and worked in other phases of dentistry for 14 years. From 1981-1983 she worked as a substance abuse evaluator and instructor for the Northeast Florida Safety Council and from 1981-1983 was employed as a rehabilitation specialist with International Rehabilitation Associates. Concurrent with these professional positions, and while she was completing her doctoral studies, she was a graduate assistant at the University of Florida, College of Education, and an adjunct instructor at the University of North Florida. In 1983, Ms. Weaver began full-time employment as a visiting instructor in the Division of Human Services at the University of North Florida and in August, 1984, accepted the position of Assistant Professor of Education. She is also the coordinator of the Center for Alcohol/Drug Studies and an executive board member of the Northeast Florida Safety Council.

Ms. Weaver is a past president of the Northeast Florida Dental Hygienists' Society. While serving in this capacity she received the Society's Achievement Award for Outstanding Contribution to Dental Hygiene. She received the Clayton Grier, D.D.S. award for a notable clinical presentation in 1968 and served as a liaison throughout the development of the dental hygiene program at Florida Junior College. In 1979 she received the Eta Sigma Gamma Scholarship pin and Achievement Award for Outstanding Community Service.


Currently, Ms. Weaver is a member of the following professional organizations: American Alliance for Health, Physical Education, and Recreation; American Association for Public Administration; American Dental Hygienists Association; American Educational Research Association; American Public Health Association; American School Health Association; American Vocational Association; Association of Labor-Management Administrators and Consultants on Alcoholism, charter member of the Northeast Florida Chapter; Association for Supervision and Curriculum Development; Eta Sigma Gamma; Florida Public Health Association; Florida Occupational Program Committee; National and Florida Rehabilitation Associations; Northeast Florida Council on Alcohol and Drug Abuse; Phi Delta Kappa; Phi Delta Pi; and Phi Kappa Phi.

Ms. Weaver is also the proud mother of Jason, age 13, and Dax, age 9. Her special interests include substance abuse research and prevention for women and youth, culture, and spiritualism.

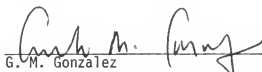
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M. K. Morgan, Chairperson
Professor of Instructional
Leadership and Support


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P. J. George
Professor of General Teacher
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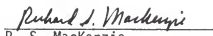
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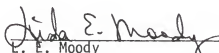
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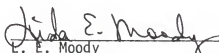
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